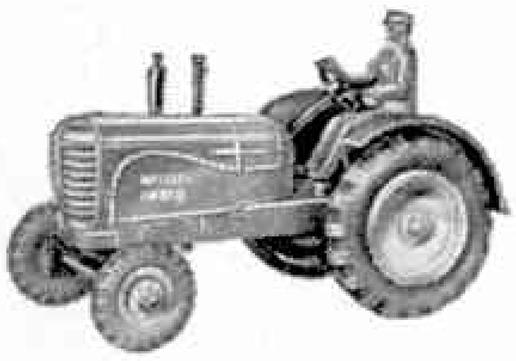
VOL. XXXIII. No. 9 SEPTEMBER 1948

MECCANO MAGAZINE

6D.

DINKY TOYS



Massey-Harris Farm Tractor
No. 27a
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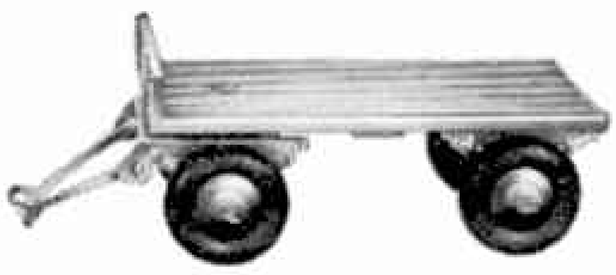
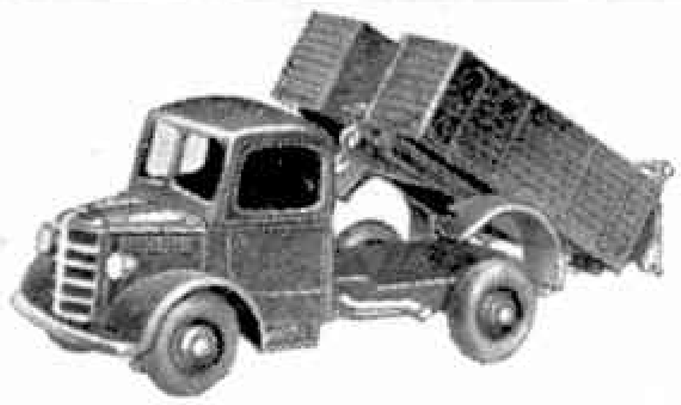
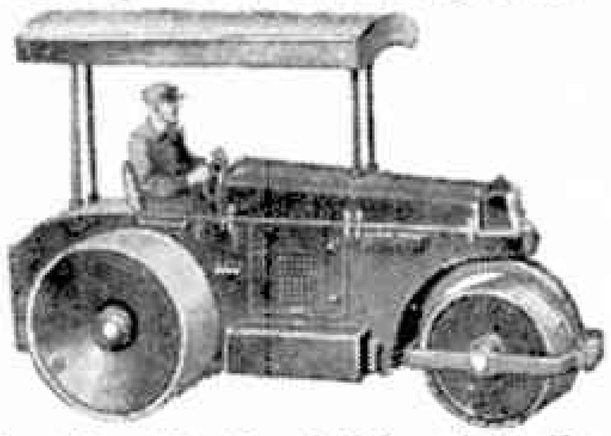


Trailer
No. 25g
Price **1/6** each (including tax)



Bedford End Tipper
No. 25m
Price **5/3** each (including tax)



Aveling-Barford Diesel Roller
No. 25p
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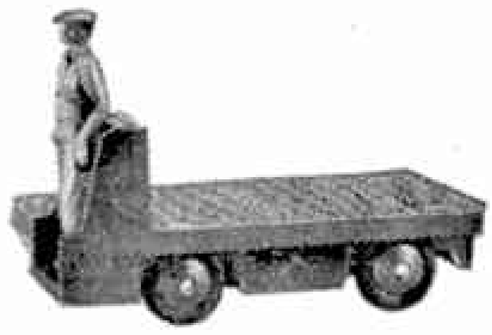

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No. 14a
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Armstrong-Siddeley Coupé
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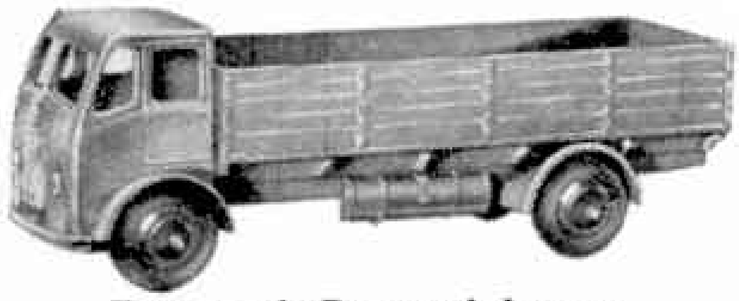

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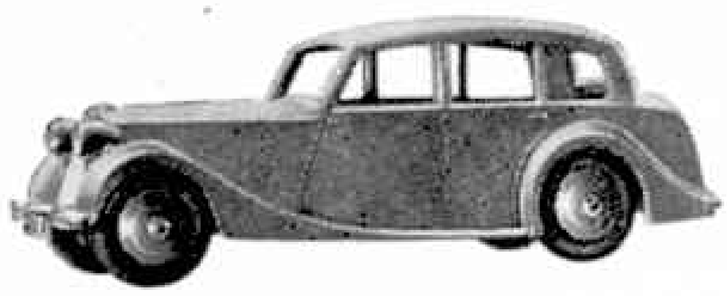
No. 105a
Price **1/-** each (including tax)



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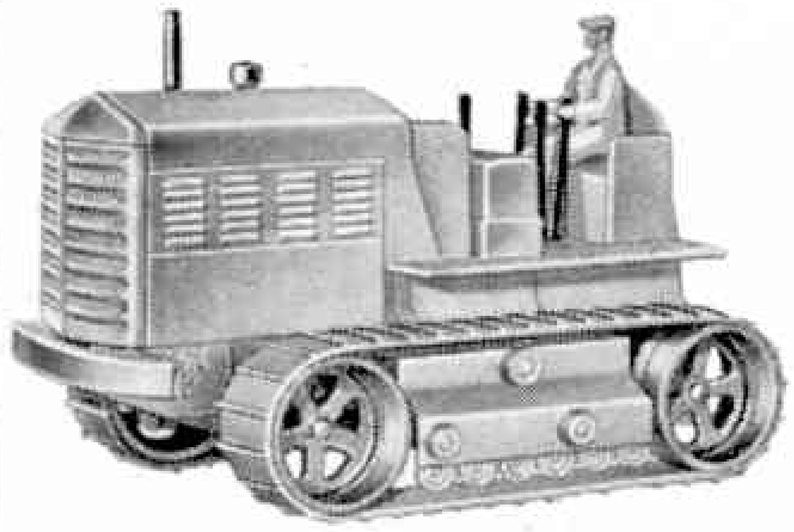

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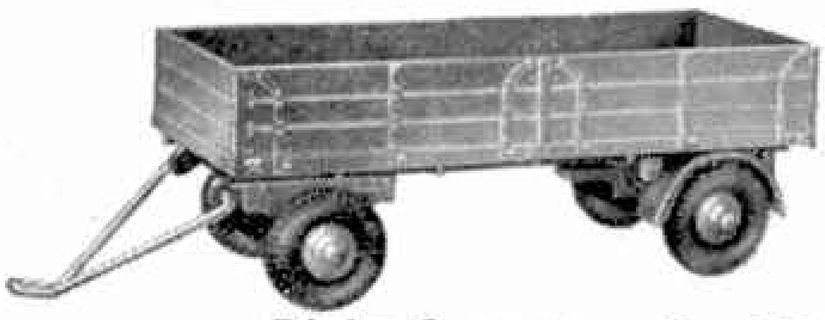

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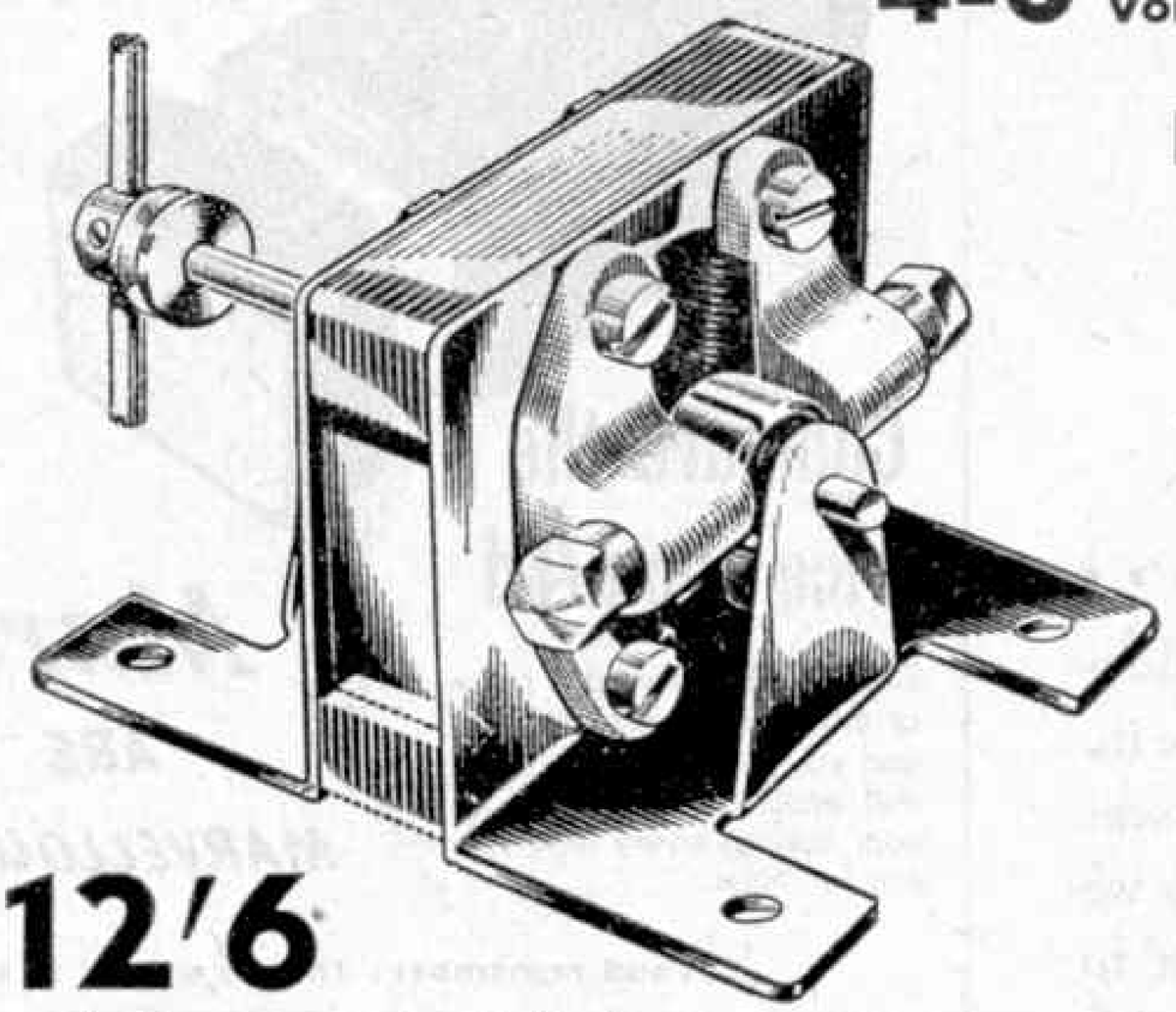

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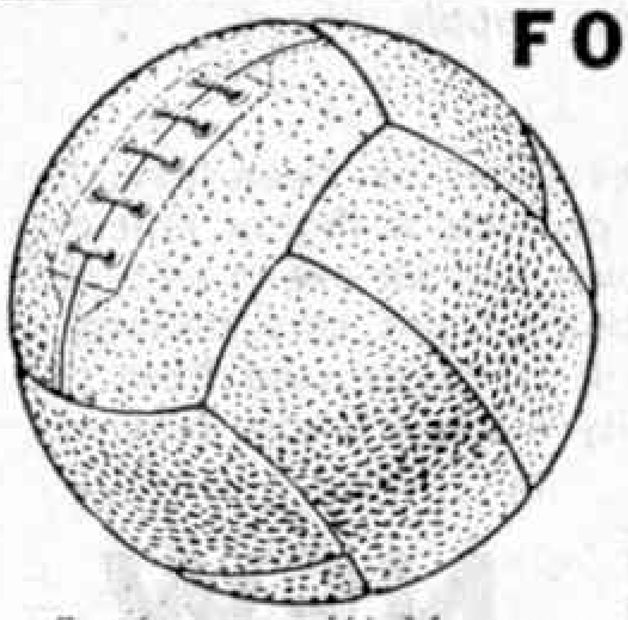

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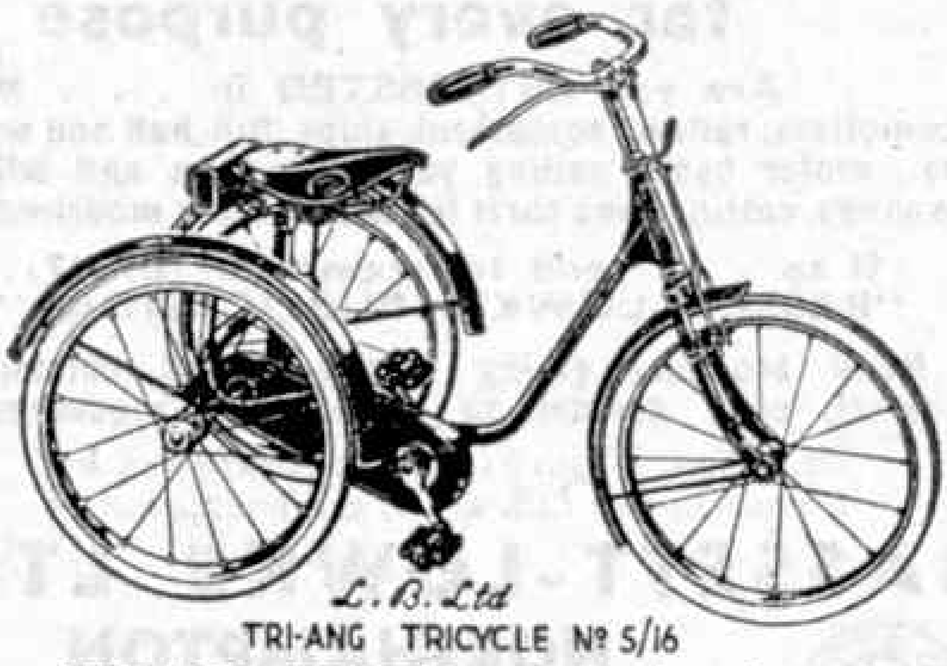
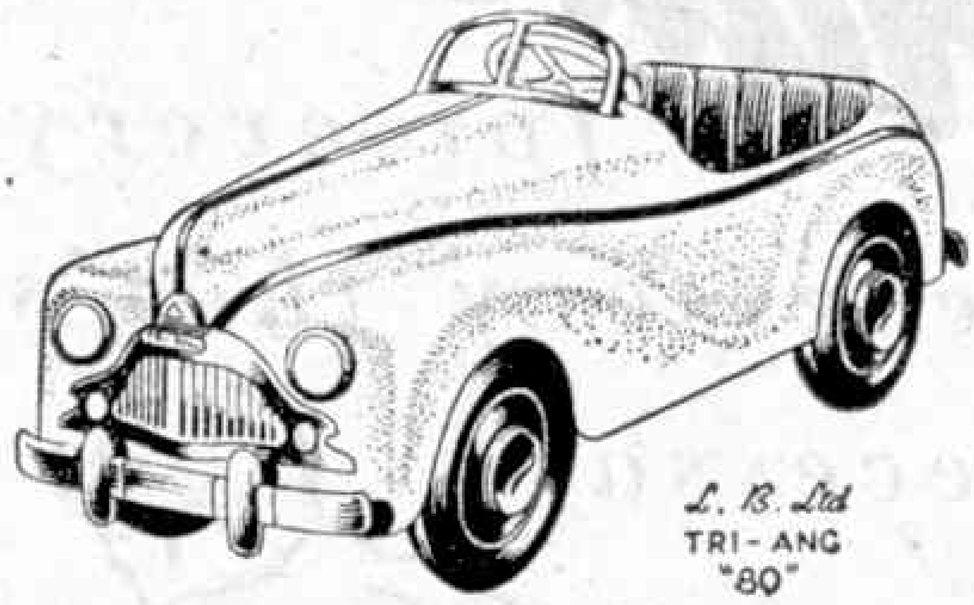
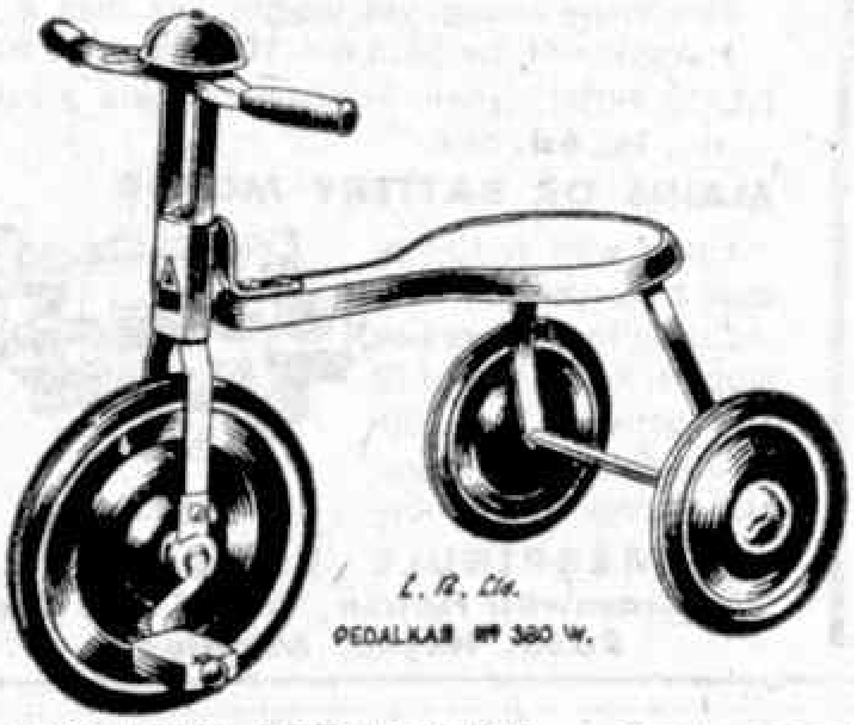


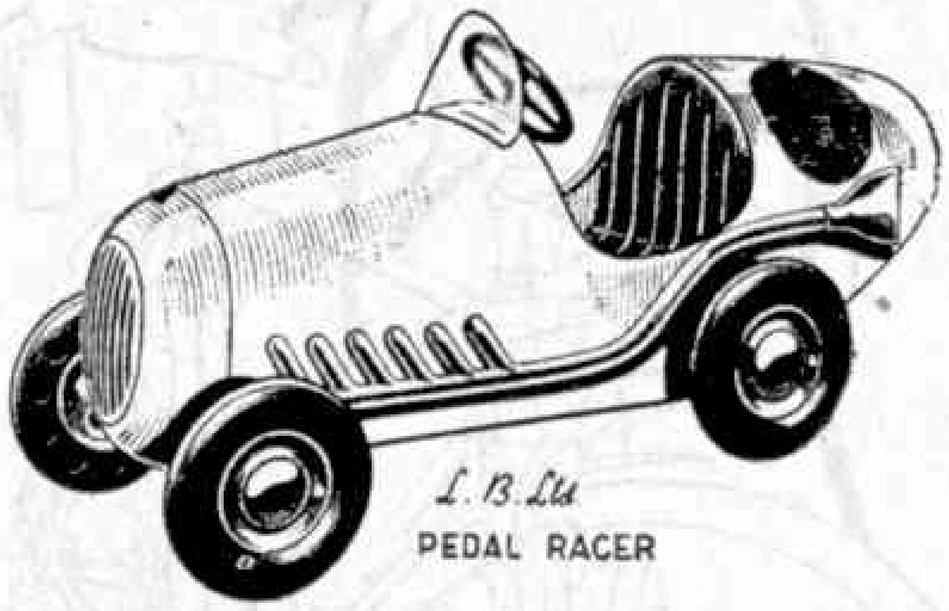
TRI-ANG TRIKES. Built by the most modern cycle engineering methods, these Trikes are exceptionally light and strong. Beautiful cycle enamel finish, with bright parts chromium-plated. Fitted ball-bearings on moving parts. Still scarce in the shops but always worth seeking.



TRI-ANG "80" PEDAL MOTOR will shortly appear in the shops. Its modern graceful lines; its bright colourful appearance and lavish chromium plating; its light but strong steel construction and its easy ball-bearing pedal action will appeal to all young motorists between 4 and 6 years.



TRI-ANG PEDALKARS. Most popular with the young ones between 2 and 4 years. Easy to ride, quite safe and built to give good service. The 380W has all steel fork and frame, polished hardwood seat and ball-bearing front wheel. See the range in your local toy shop.



TRI-ANG PEDAL RACER. Youngsters from 4 to 6 years will be thrilled with this splendidly designed car, built for speed; it has ball-bearing rear axle for easy pedalling; it is steel throughout and is beautifully finished in attractive colours.

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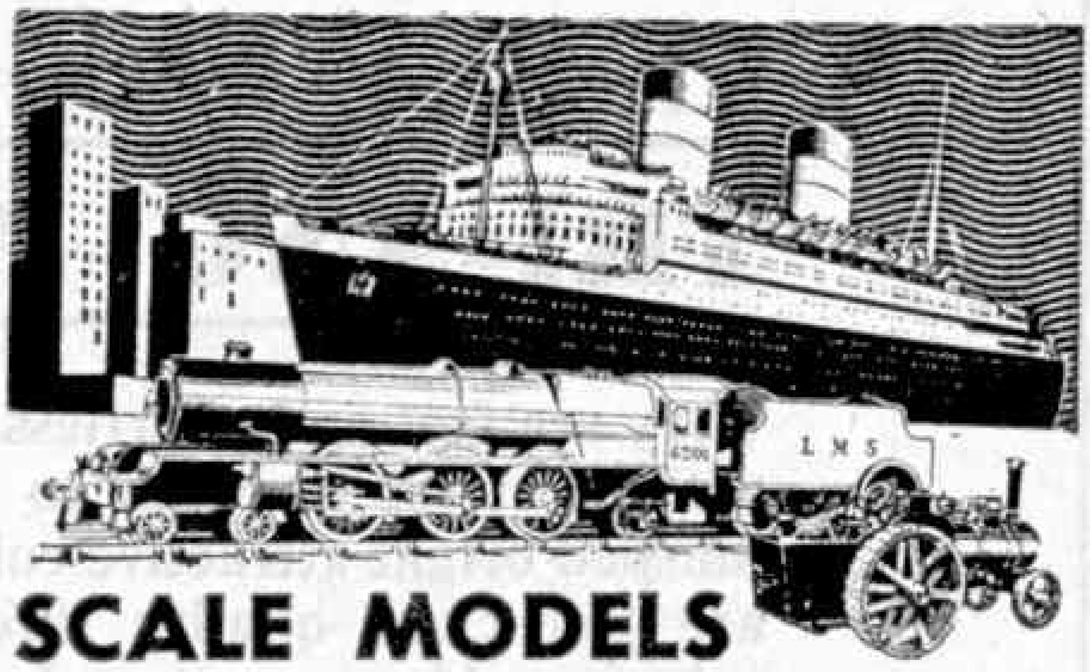

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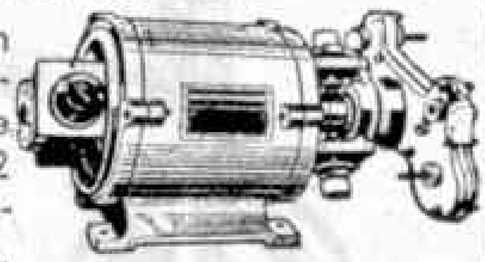

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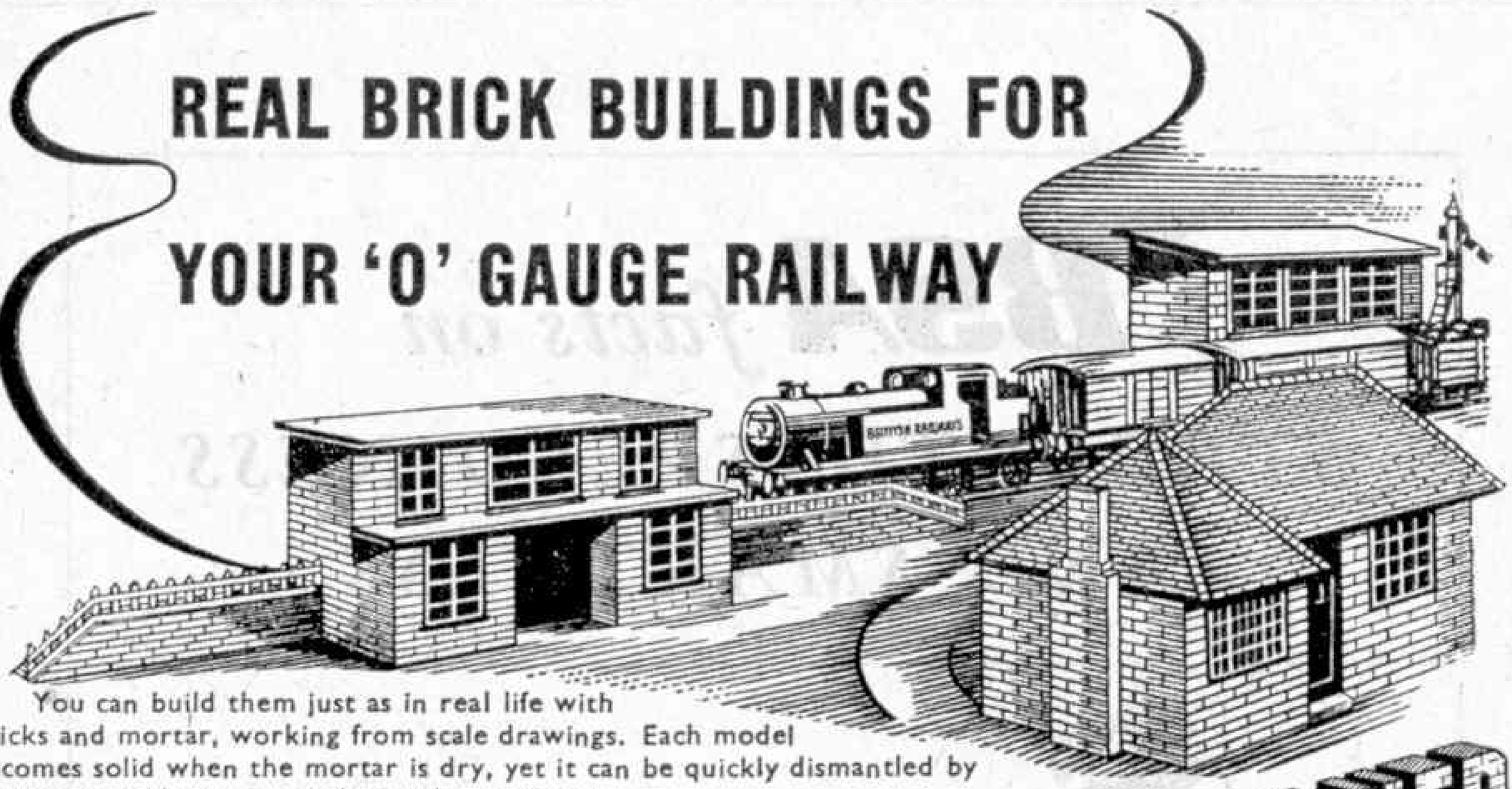

You can build them just as in real life with bricks and mortar, working from scale drawings. Each model becomes solid when the mortar is dry, yet it can be quickly dismantled by soaking in cold water and the bricks used again.

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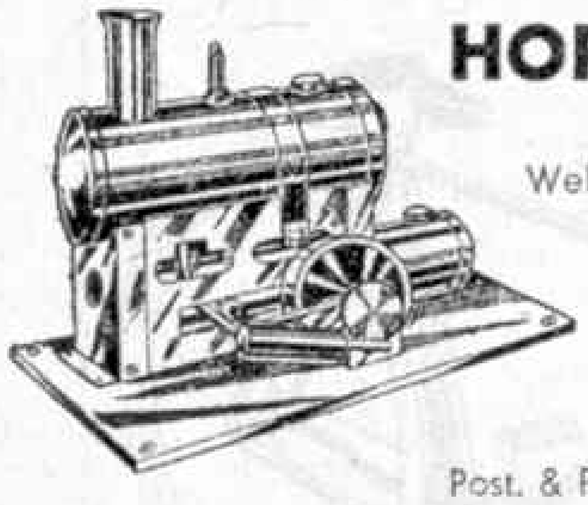

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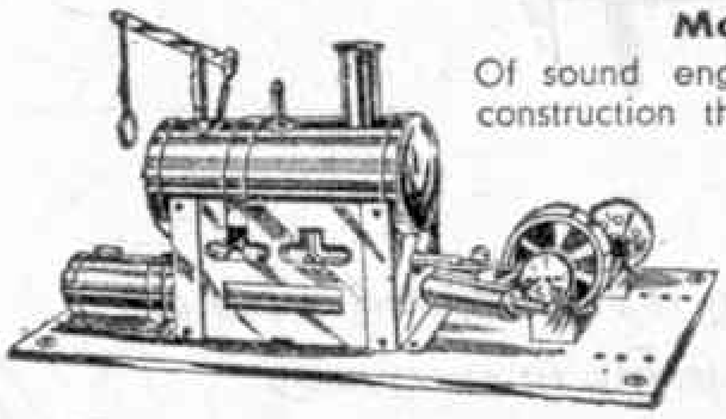

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Of sound engineering design and construction throughout. Fitted with safety valve, steam whistle and geared driving cog.
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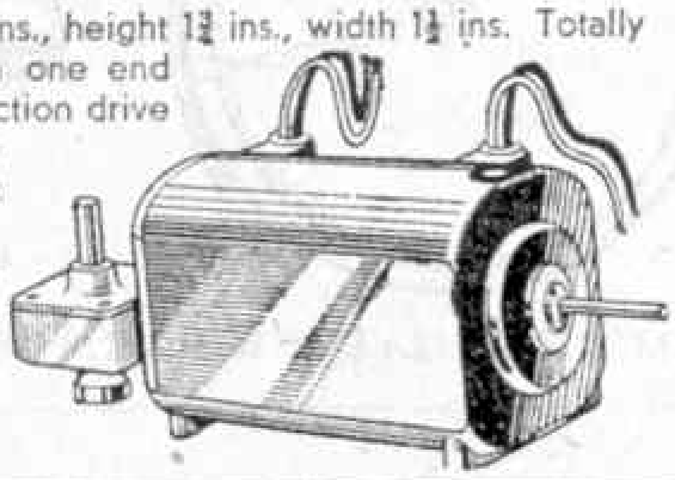
Weight 13 ozs. Length 2½ ins., height 1¾ ins., width 1½ ins. Totally enclosed direct drive from one end and removable 16 to 1 reduction drive from other. Nine pole armature on silver steel shaft running in twin ball races. Motor runs on 8 to 12 volts D.C., is reversible and uses only 0.8 amp. on full load.



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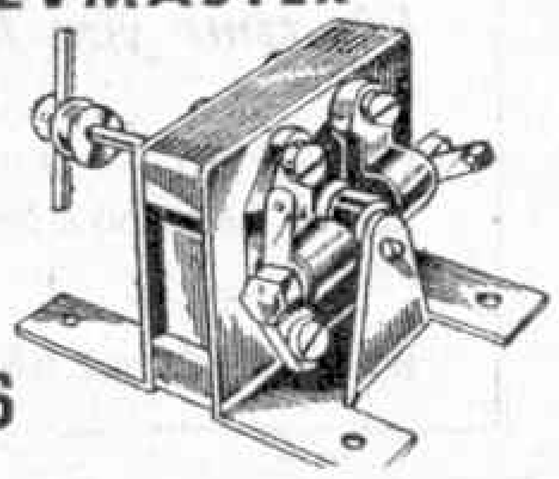
Specially designed to give a high power output whilst retaining a low current consumption. Develops 6,000 r.p.m. Runs on 6 or 4 volt D.C. Consumption approximately .2 amps. **12/6**



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STRENGTH C. I. Thornton, famous County cricketer, made several hits of 150-160 yards.

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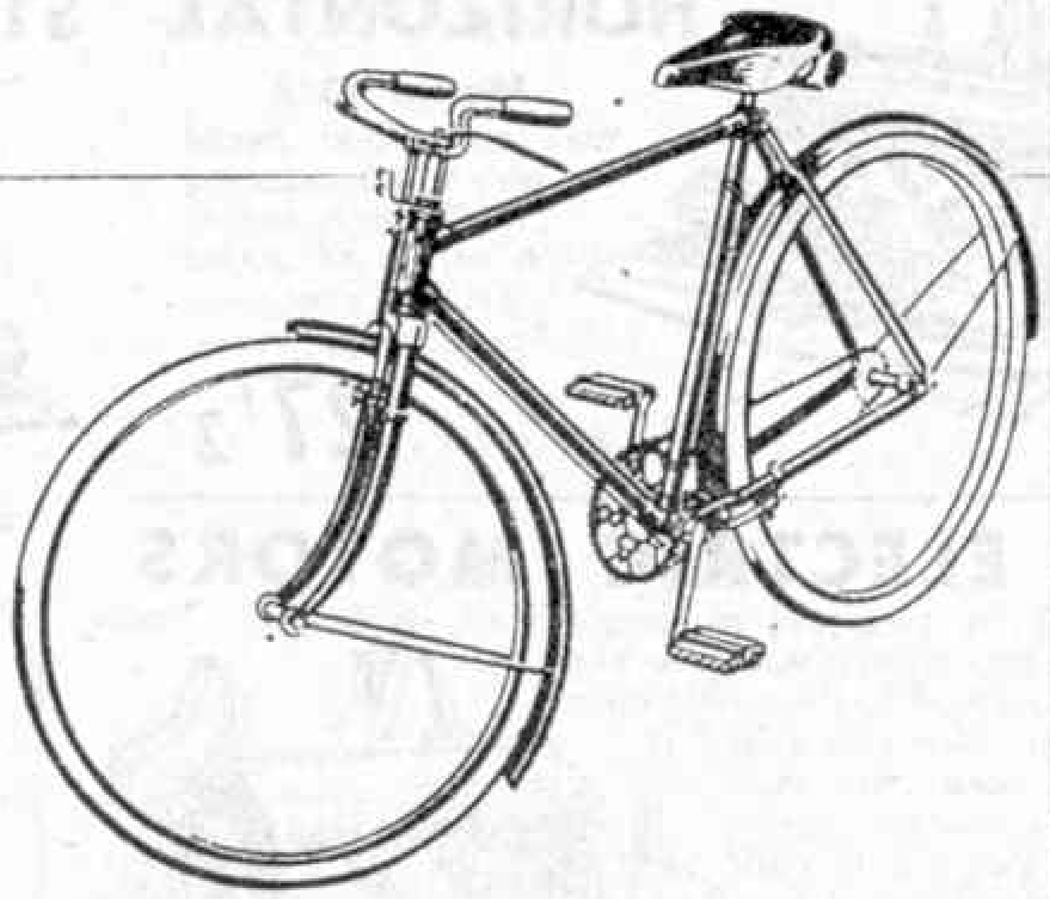
SMARTNESS At the Royal Naval College, Dartmouth, the King's Dirk is awarded to the best all-round cadet. Smartness scores points, of course!



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Next Month: "THE ROMANCE OF SHIP NAMES." By Frank C. Bowen

MECCANO MAGAZINE

Editorial Office:
Binns Road
Liverpool 13
England

Vol. XXXIII
No. 9
September 1948

With the Editor

A Strange Discovery

Mr. T. R. Robinson, who has contributed many splendid articles to the *"M.M.,"* has some interesting discoveries of ancient clocks to his credit. On page 310 of this issue he describes how an old clock in a Lincolnshire church was put into running order after he had discovered that a few repairs only were necessary to effect this. The dial of the clock was black and white, but on removing the coat of paint covering it there was revealed a red disc in a white ring, with a blue outer ring enclosing the whole. These are the colours of the R.A.F. roundel.

Now comes the interesting part of the story. During the war the church steeple with its clock was a landmark for R.A.F. crews returning to the airfield close at hand. Thus, without knowing it, the airmen had been homing on their own identification mark.

Many of those who saw the clock in its restored form imagined that it had been deliberately painted to commemorate the association of the R.A.F. with the village. Far from this being so, the colours in their correct order, forming a roundel, had actually been placed there a few centuries earlier, when flying was but a dream. It was almost as if those who designed and made the clock had some prophetic vision of the use to which their creation would be put in the years to come.

Rapid Track Renewal

Denbigh Hall, 48 miles from Euston, on the London Midland main line, was recently the scene of a remarkable feat of permanent way renewal, involving not only the track itself but also the actual formation to a depth of some 4 ft. below rail level. The job had become necessary because of the uncertain nature of the underlying clay, which was liable to slip. After much preliminary work, which included the laying of a special siding for material trains, a formidable battery of mechanical appliances was mobilised including four draglines and two bulldozers. With these, after the removal of 220 yds., of double track, 2,400 tons of clay and ashes were removed prior to the spreading of a layer of fine sand and new ballast. All this material transported from and to the site required 22 trains and 12 engines.

With the relaying of the permanent way it became possible, after 49 hours' "possession," for the engineers to hand back for traffic the "down" and "up" fast lines affected, a speed restriction naturally being imposed for the time being.

This Month's Contents

	Page
Britain's First Main Line Diesel in Service	290
Deep Sea Disguise by Denis Rebbeck, M.A., M.Sc.	292
Digging by Machinery	293
"Made to Measure" Take-Offs by John W. R. Taylor	296
How a Royal Doulton Figure is Made	300
The Last of the "Claughtons" by "North Western"	306
Britain's Helicopter Postmen by John W. R. Taylor	309
An Ancient Clock restored by Welding by T. R. Robinson, F.B.H.I.	310

Air News, 304. Books to Read, 297. Club and Branch News, 313. Competitions and Results, 324–5. Fireside Fun, 327. From Our Readers, 303. H.R.C. Pages, 318–9. New Meccano Models, 316, Among the Model-Builders, 314, Model-Building Competition, 315. Photography, 312. Railway Notes, 298. Stamp Pages, 321, 323.

London Midland diesel locomotive No. 10000 approaching Hendon with the 8.55 a.m. from Derby to London. This and the illustration opposite are from British Railways Official Photographs.

Britain's Main Line Diesel in Service

Cab Impressions on London Midland Journeys

by D. S. Barrie, M.B.E.

WITHIN 8 months of the introduction of the first diesel-electric locomotive built for main line service in Great Britain, its twin counterpart (No. 10001 of British Railways) has recently been completed at the Derby Works of the London Midland Region. The stage is now set, therefore, for the second phase of this most interesting experiment, whereby the two 1,600 H.P. units will be tried out in tandem as a single 3,200 H.P. locomotive on the heavy Anglo-Scottish expresses of the West Coast Route.

Meanwhile, the first unit (No. 10000) has been giving an excellent account of herself on the Midland Division of the L.M.R., hauling with efficient regularity express passenger trains of from 275 to 350 tons between Derby and St. Pancras. Latterly, the roster called for two round trips a day between these points, involving the creditable mileage of some 3,100 miles in the course of a six-day week; it was while No. 10000 was on this duty that I was able, by courtesy of the Chief Operating Manager of the L.M.R., to study at first-hand the working and management of the locomotive from the driver's cab.

It was an experience of much interest and many contrasts, enabling the flexibility and accelerative capacity of the unit to be demonstrated both on a 99-miles non-stop run, and on a schedule calling for fairly frequent stops. Other impressions, of a less technical character, were no less interesting. I had thought that perhaps the cold efficiency of a fireless machine, the monastic isolation of an enclosed cab, would strip "the footplate" of all those elements of sentient life, of surging power, that make it so fascinating a place for the privileged "outsider." But for any lover of the railway, No. 10000 can produce moments of magic.

The big cab windows, with no boiler in front of you to limit the view, unfold a marvellous panorama of railway life: the beckoning signals seen at their limit of range, the distant platelayers stepping aside in obedience to the strident horn whose control-button is close by the driver's left hand; the sudden stir of interest among people on wayside stations as they suddenly realise that this is "the diesel" bearing down on them; the furious scribbling and eager waving of small boys; the long freight train labouring along an adjacent track, overhauled as though it were standing still, until its engine drops behind in a final protesting flurry of smoke and steam and the sudden-heard beat of pounding exhaust.

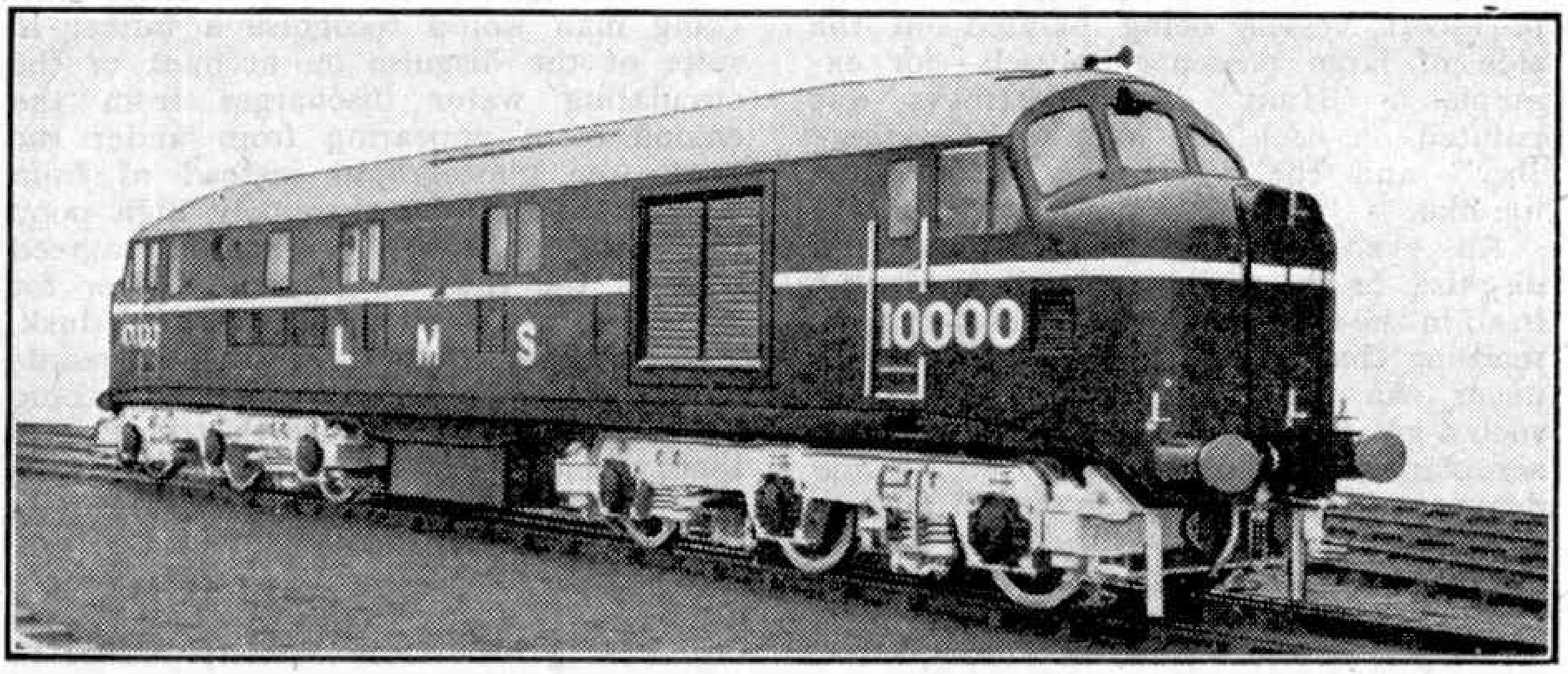
Such are the daylight impressions; at night the roomy cab of No. 10000 takes on a different atmosphere as it slips into darkness, and the enginemen, just like any motorist, switch on the dashboard lights. In the dark, the hum of the great motors sounds deeper and more purposeful, but the beat of the 16-cylinder diesel engine is practically inaudible from the cab save when "revving-up" from the idling speed (425 r.p.m.) to the working speed (750 r.p.m.), or when echoed back by cutting-wall or tunnel-roof. Under such conditions there is, indeed, an almost uncanny feeling of being in the nose of a great aircraft roaring into the night rather than in the driver's cab of a railway train.

As we swept up the long 1 in 200 grade from Bedford to Luton, the moon rose full over the dark loom of the Chilterns ahead, to fill the cab with its yellow radiance and to compel Driver Palmer, anxious for the earliest glimpse of signals, to adjust the anti-glare screen with which—ultimate refinement!—No. 10000 is fitted against just such a contingency.

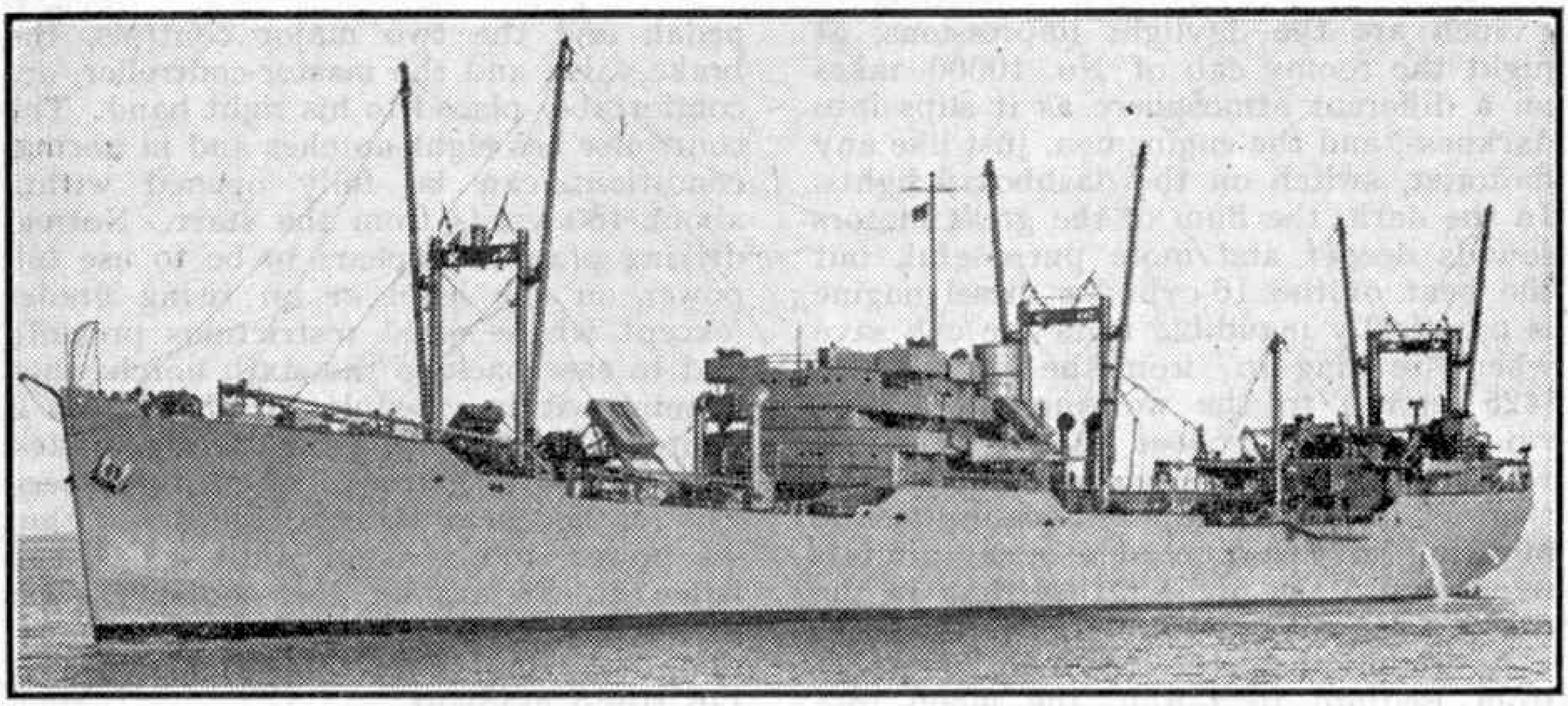
This is, indeed, engine-driving de-luxe, and I was not surprised to find all the enginemen with whom I travelled enthusiastic about diesel-electric driving. Both driver and fireman have comfortable tip-up seats, the former on the left of the cab and the latter on the right; furthermore the locomotive rides with such steadiness and so quietly, compared with a steam locomotive, that it was quite easy both to count the beats as the six-wheeled bogies rode smoothly over the rail-joints, and to pour out a cup of tea while standing in the cab.

Actual driving appeared equally simple. The driver rests his foot on a dead-man's pedal, and the two major controls, the brake-valve and the master-controller, are comfortably placed to his right hand. The controller has eight notches and in normal conditions can be fully opened within about 150 yards from the start. Normal driving practice appears to be to use full power on the level or on rising grades (except where speed restrictions prevail), and to ease back to the sixth notch when running within schedule, or when speed is approaching 75 m.p.h. on falling grades. On the down journey, when this speed was reached near Radlett, the driver shut off power and coasted until speed had fallen to 51 m.p.h.; the controller was then reopened fully, producing an acceleration to 54 m.p.h. in three miles of 1 in 176 rising gradient.

The London-Derby journey with No. 10000, hauling a nine-coach train of 276 tons, demonstrated in remarkable degree the ability of the diesel-electric unit to recover rapidly from out-of-course checks. After the initial 41¾ miles from St. Pancras to passing Ampthill had been run in 44 min., inclusive of one permanent way slowing, no fewer than six further p.w. slacks were encountered, together with a dead slowing for signals through Wellingborough; yet the (admittedly easy) schedule of 121 minutes for the 99 miles to Leicester, the first stop, was exceeded by only half a minute. The worst p.w. slack encountered was one to 14 m.p.h. right at the foot of Sharnbrook Bank, in spite of which the summit was breasted at 43 m.p.h. after a 4¾ miles climb, mostly at 1 in 119. By contrast, a clear road was enjoyed over the delightfully easy-running track from Leicester to Derby, (*Continued on page 326*)



Another view of No. 10000, showing the massive construction of the special six-wheeled bogies. The large shuttered opening prominent in the side forms part of the radiator cooling system.



Deep Sea Disguise

By Denis Rebbeck, M.A., M.Sc., B.Litt., M.I.N.A.

DURING World War I both the enemy and ourselves adopted all sorts of tactics to try and fool each other on the high seas. Readers will remember camouflage, which was carried out on a very extensive scale, and "Q" ships, which appeared to be peaceful merchantmen until they got close to the unsuspecting U-boat, whereupon they suddenly shed their disguise and showed their wicked-looking guns.

The recent war brought similar problems in its train, and during the early part of the conflict, when escort vessels were scarce, it was considered that a ship apparently escorted by a destroyer would be less liable to attack from enemy submarines. This resulted in the outline of escort vessels being painted on the side of large passenger vessels—for example a "Hunt" Class destroyer was painted on each side of the "*Esperance Bay*"—and the result was really most life-like.

An even more pressing problem of disguise, or the necessity for it, presented itself in the case of convoys. The Germans, realising that without oil the Allies could never win the war, which depended to such a great extent on petrol-driven tanks, aeroplanes, lorries, cars, etc., etc., made determined efforts to single out oil tankers when attacking convoys. The toll of tankers became very heavy, and the Allies became very worried about the serious situation which, in consequence, was developing in oil supplies.

A new idea in disguise was born and the illustration at the top of this page shows what came of it. The scheme was simple and remarkably effective. Briefly, the idea was to make oil tankers look the same as ordinary merchantmen, and this was achieved by placing a dummy funnel amidships instead of in its usual position on the poop. As the propelling machinery was still at the after end of the vessel, however, it was necessary to get rid of the exhaust gases from the main engine and auxiliaries. Here, too, ingenuity was displayed, and two dummy derrick posts were erected at the after end and the exhaust gases were carried up the centre of these posts.

It was agreed that the average sea going man would recognise a tanker in spite of the disguise on account of the circulating water discharges from the engine room appearing from under the poop (see photograph) instead of from amidships, and the extremely high poop itself, but it was also generally agreed that at the time of greatest danger for convoy attack, that is at dawn and dusk, there would be less chance of these points being noticed. In any case, anything which might help was worth trying, and there is no doubt that the idea of disguising tankers in this fashion did help to fool the U-boat commanders.

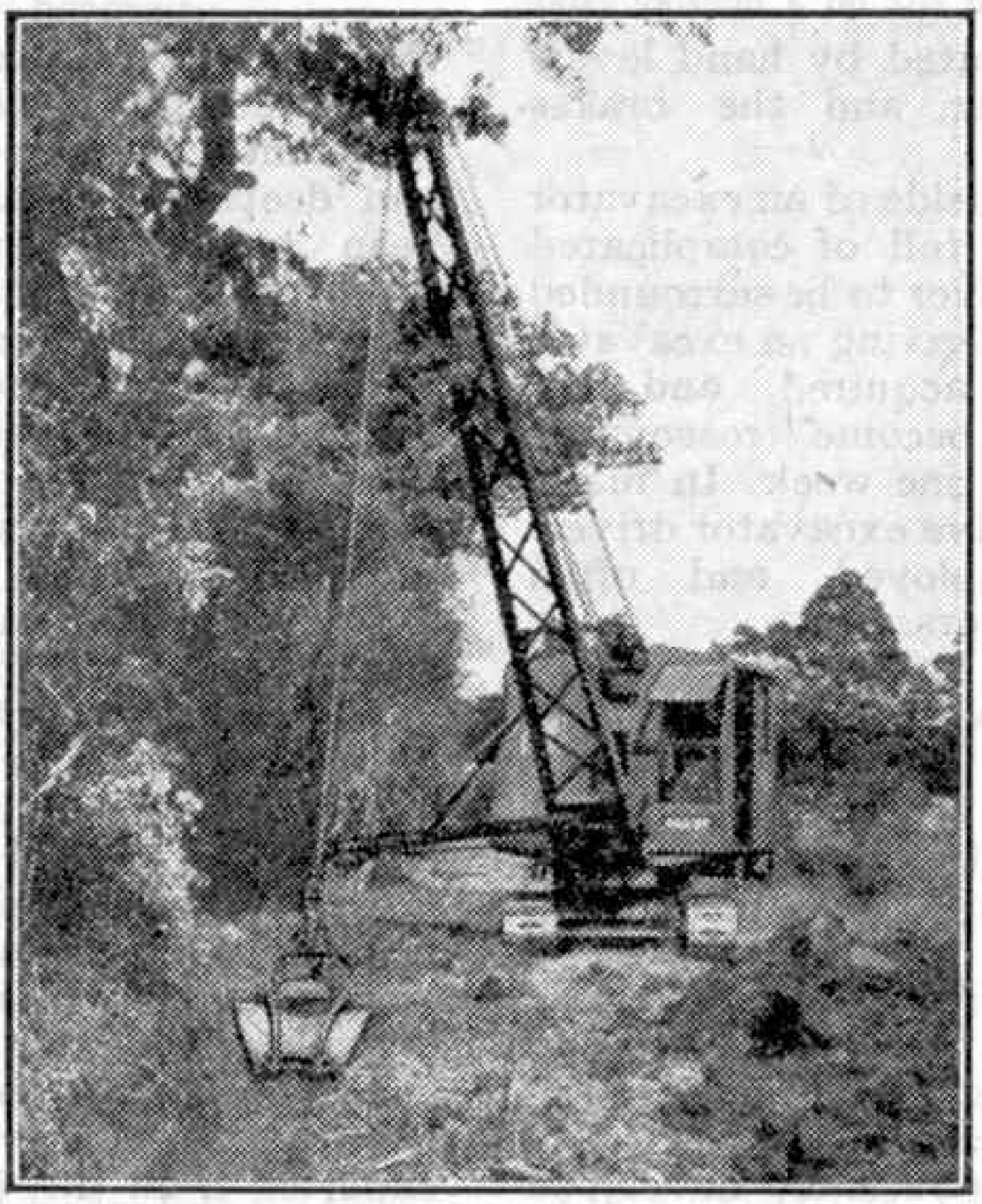
When one of these tankers was launched, a quick-witted apprentice put some burning sacking inside the dummy funnel to complete the disguise!

Digging by Machinery

The Universal Type Excavator at Work

THE mechanical excavator is one of the most remarkable of the many machines that have been produced to speed up what may be described generally as digging operations. The steam shovel, or steam navvy as it was often called, was the first of many machines of this type. In suitable conditions it was capable of an enormous amount of work but it was limited in scope. For instance, it could not operate on wet or marshy ground, and it could not dig out material below its own level. Modern requirements call for excavators of much greater adaptability, and in this article we describe briefly the nature and purpose of one of the latest machines, generally known as the Universal type excavator. This has the great advantage over other forms of material-handling machinery that it can easily be altered and adapted to carry out various kinds of digging and handling.

Universal type excavators at present manufactured vary from machines having a weight of approximately 8 tons up to giants having a weight of over 1,500 tons. The smallest machines dig about a quarter of a ton at each bite and can handle roughly 30 tons per hour. The very largest sizes are in all cases produced for some particular job and dig up to 30-35 tons at each operation. These large machines are mostly manufactured in America, although a small number is now produced in Britain. On the whole the British maker concentrates most of his efforts on excavators weighing between 8 and 30 tons, with capacities of from ¼ ton to 2 tons at a bite.

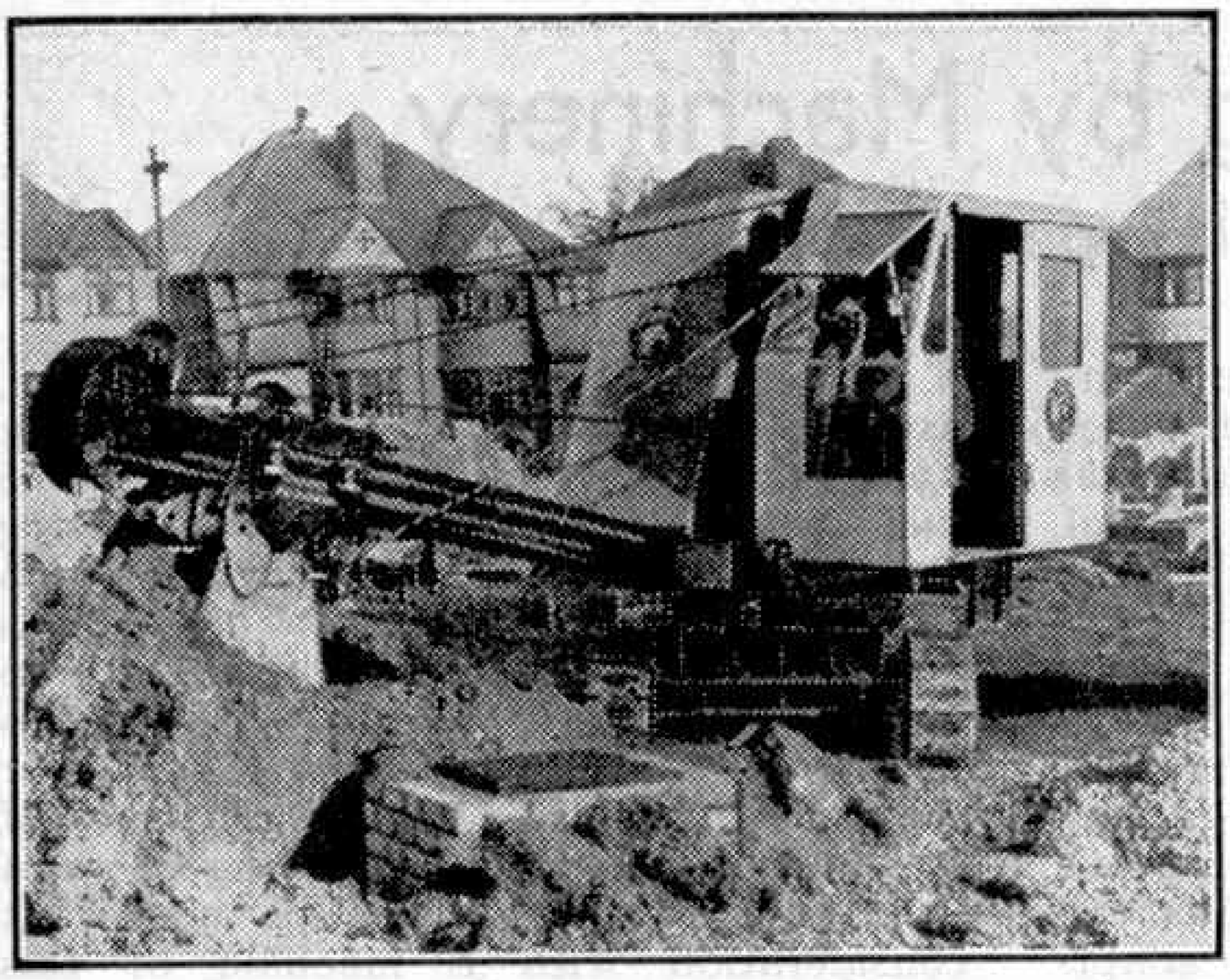


"Cub" excavator, weighing 8½ tons, with Side Dragline attachment. For the illustrations to this article we are indebted to Priestman Bros. Ltd., of Hull, manufacturers of the Universal Excavators shown.

Except for a few of the larger sizes, excavators stand on creeper track type undercarriages which are driven from the main engine by means of a shaft passing through the centre of the pin on which the superstructure revolves. These tracks are designed to enable the excavator to manœuvre on the working site, and are not meant for moving the machine over long distances. The travelling speed of an excavator is very low, being between ¾ and 2 m.p.h. The most important consideration with a machine of this type is not so much speed of travelling, but reliability and the ability to move over difficult ground conditions. Where any long distances have to be covered the excavator is usually driven on to a low-loading trailer and transported by road.

In most cases the engines now used are of the Diesel type, although the Americans still fit many petrol engines in view of the ease with which this fuel may be obtained in their country. The very large types of excavator frequently embody Diesel-electric drive, and a small number of machines are manufactured, driven by electric motors fed from the mains through a trailing cable. As would be expected, the latter are mainly used at power stations.

From the engine it is usual to fit a chain drive to the main clutch shaft from where the power is transmitted by gears to the twin rope drums. All machines have two main rope drums for operating the digging attachments, each drum being fitted with its own clutch and brake.



"Wolf" excavator, weighing 9½ tons, with a Skimmer attachment, levelling a road site on a housing estate.

The clutches are operated by hand levers in front of the driver, and the brakes by foot pedals.

At first sight, the inside of an excavator house appears to be full of complicated machinery and the driver to be surrounded by dozens of levers. Driving an excavator is, however, easily acquired, and the average man can become reasonably proficient after about one week. In many parts of the world native excavator drivers are successfully employed, and often become skilful operators.

The following are the main types of attachments used with the Universal excavator:

Shovel. The most widely known front end equipment, used for digging clay, sand, earth, coal, etc., from above track level.

Dragline. Used for digging, widening and deepening rivers, canals and ditches, Also used for digging clay, sand, earth, etc., from below track level.

Side Dragline. This recently developed attachment is used for digging and cleaning small ditches. It enables the digging scoop to be drawn along the centre line of a ditch while the machine stands and travels along one bank.

Trencher or Dragshovel. Used for digging trenches for water pipes, sewers and electric cables, etc. A special type of trenching tool called the "Teredo" is used for very narrow trenches, and incorporates mechanism which positively discharges the spoil from the narrow scoop.

Skimmer. Used for the final levelling of roads and sites for houses, etc.

Grab Crane. Used for handling loose materials such as coal and sand from stock-piles, railway trucks, ships and barges, etc. Different types of grabs can be supplied for use under various circumstances.

In addition, a number of other attachments can be fitted to excavators to enable them to act as lifting cranes, pile drivers, etc.

Thousands of excavators in Great Britain operate every day on building sites, in quarries, sand pits, coal yards and factories. Such machines are also used for many specialised purposes.

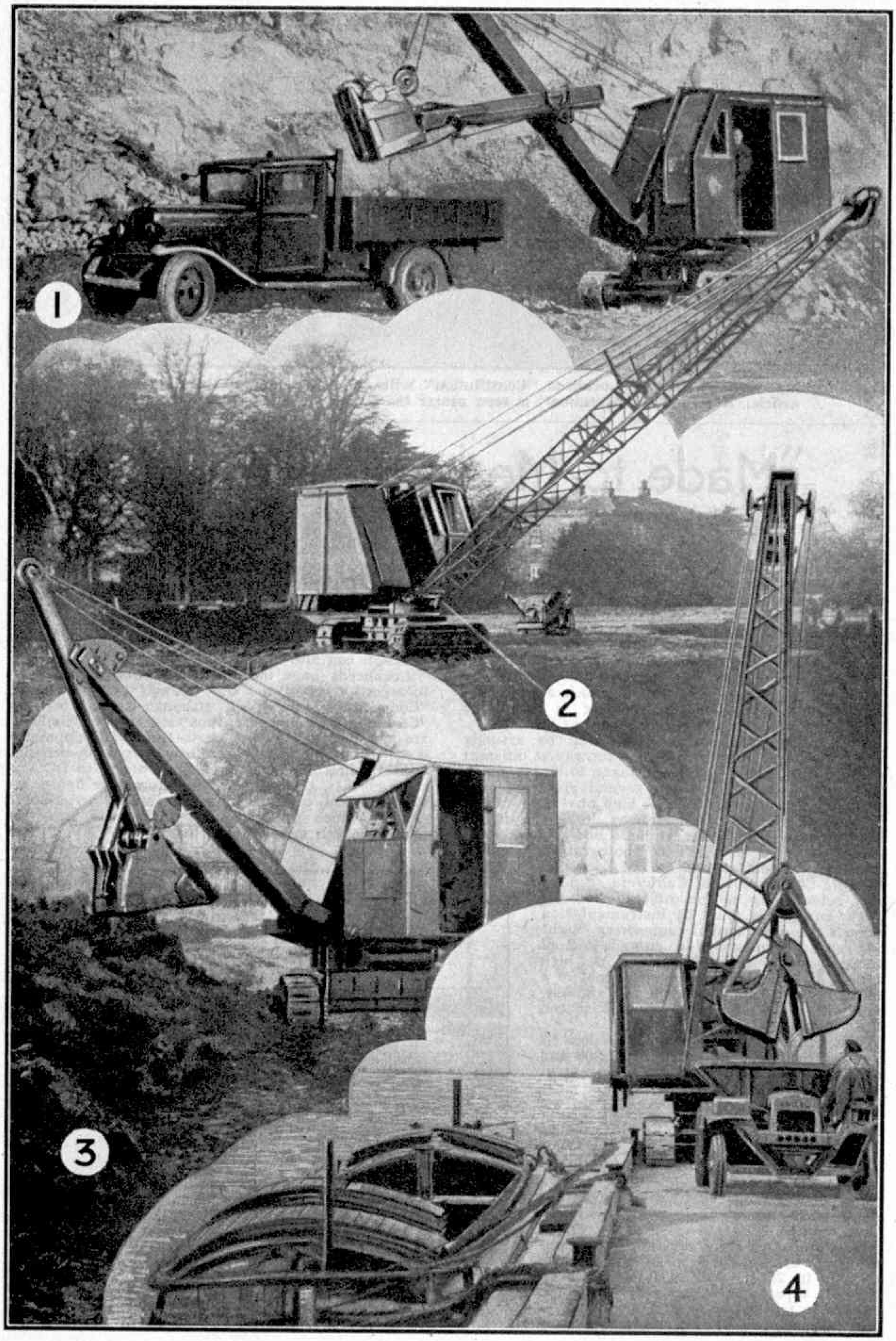
Over 500 small excavators weighing about 8 tons each are operated for drainage purposes by the Ministry of Agriculture and Fisheries in Great Britain. The machines concerned are mainly employed in digging, widening and deepening small ditches which have been neglected for very many years. The increased agricultural produce grown in this country during and since the war has to a large degree been made possible by the use of these excavators which perform the work of thousands of men. One of these excavators was built with an armour-plated cab to allow the driver safely to clean out ditches into which small bombs had fallen during the war.

The excavator is the tool used to obtain open-cast coal. In most cases 20-40 ft. of earth or clay must be removed to enable 3-10 ft. of coal to be obtained. Large machines weighing 50-100 tons are necessary for removing the overburden, while smaller excavators are used for digging and loading the coal itself.

There is a tremendous world-wide demand for excavators, and they are exported from this country to all the continents. There is no doubt that excavators are playing, and will continue to play, an important part in the reconstruction of the world after the last war.

For the material contained in this article we are indebted to Priestman Bros. Ltd., of Hull, manufacturers of the Universal Excavators illustrated.

The photographs on the next page show (1) Priestman "Wolf" excavator loading quarried stone with Face Shovel attachment. (2) "Wolf" excavator, with Dragline attachment, improving the banks of a river in England. (3) "Cub" excavator excavating a sewer trench with Trencher attachment. (4) "Tiger" excavator, with Grab Crane equipment, off-loading from a barge phosphates, to be used as artificial manure.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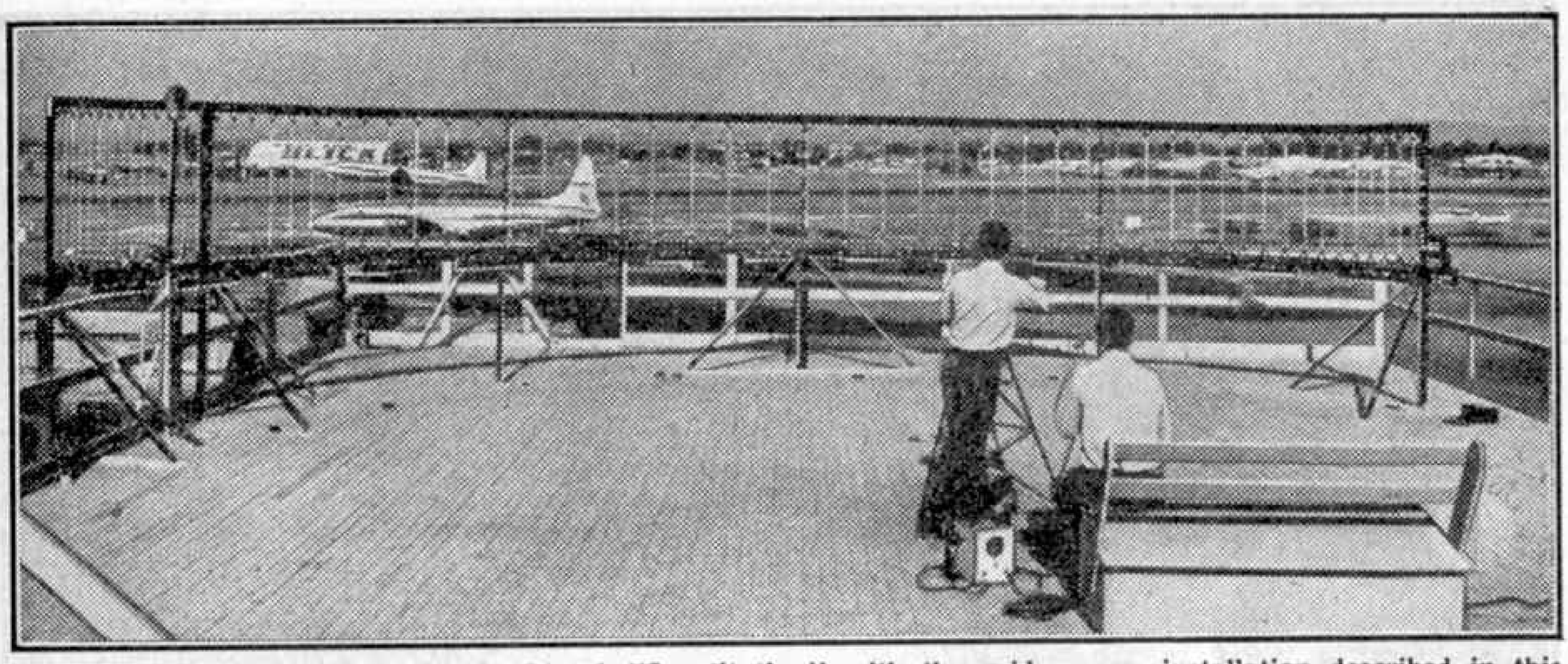


Photographing the take-off of a Lockheed "Constitution" with the grid-camera installation described in this article. A second "Constitution" is seen nearer the screen, awaiting its first test flight.

"Made to Measure" Take-Offs

By John W. R. Taylor

ONE of the new I.C.A.O. safety requirements, with which all civil aircraft eventually will have to comply, aims at reducing the risk of accident during take-off by specifying the minimum runway length from which aircraft may be operated. For each type of aircraft a table of runway lengths corresponding to various loaded weights will be worked out—the heavier the load carried, the longer the runway. These lengths will be calculated on the run needed from rest to clear a 50 ft. obstacle such as a belt of trees round the aerodrome, bearing in mind the possibility of an engine cut during take-off.

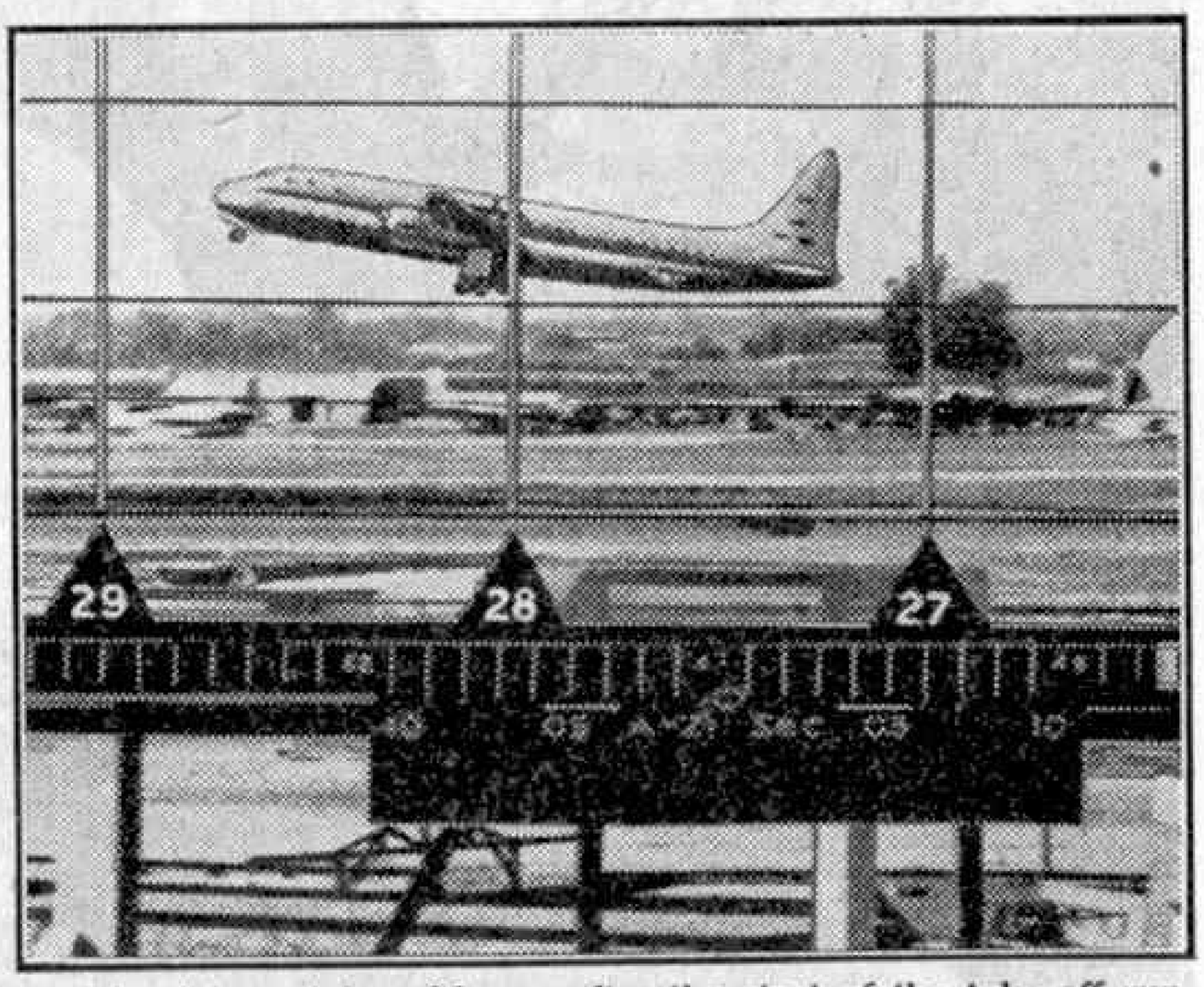
Such figures can only be obtained by actually flying each type of aircraft from a runway at different weights and measuring the run taken to clear a 50 ft. obstacle—a process involving several problems. For example, a real obstacle 50 ft. high obviously cannot be built at the end of the runway, for if the aircraft did not clear it first time, it could not go back for a second attempt! But a new photographic measuring system devised by the Lockheed Aircraft Corporation, of California, U.S.A., may solve many of the difficulties.

The equipment, built by instrumentation experts of Lockheed's engineering flight test group, consists of a curved grid of vertical and horizontal wires 9 ft. high and 64 ft. long, mounted on the roof of a 45 ft. hangar parallel with the runway, and with a special cinema camera placed 20 ft. behind this wire screen.

The camera's 4½ in. telescopic lens is focussed on the aircraft between 1,800 and 2,000 ft. away, and the whole arrangement is so designed that when the camera picks up a sharp image of the aeroplane on the runway, the numbered grid wires and a timing tape are also in focus. This device permits mathematical determination of an aircraft's take-off and landing characteristics with an accuracy of 1/100th of a second—something that was impossible when such flights were tracked with a hand camera.

Vertical wires mark off 100 ft. sections of the runway; horizontal wires show altitude in 25 ft. and 50 ft. sections. A movable tape at the bottom of the grid is marked in tenths of a second, and is pulled past the camera by an electrically-timed motor in the same direction as the aeroplane. The grid camera film permits accurate calibration of the aircraft's speed and shows exactly the time and distance required for take-off or landing, and where the machine would clear a 50 ft. obstacle. The effect on take-off performance of fitting different types of engines and propellers, and of using different flap positions can also be observed exactly.

Lockheeds have used the new equipment chiefly to record tests of the U.S. Navy's giant Lockheed "Constitution" transport, although special tests of "Constellations" and "Neptune" search-patrol bombers are also recorded from time to time. The apparatus is equally useful for civil or military types, as, although military aircraft do not have to conform to I.C.A.O. requirements, precise take-off performance figures are always useful, particularly in the case of carrier-based aircraft which must be able to operate from the limited length of a flight deck.



In this picture, taken 26 sec. after the start of the take-off run, the air liner had climbed 50 ft. and was about 2,900 ft. down the runway.

BOOKS TO READ

Here we review books of interest and of use to readers of the "M.M." With the exception of those issued by the Scientific and Children's Book Clubs, which are available only to members, and certain others that will be indicated, these should be ordered through a bookseller.

"TOYS AND MODELS"

By CYRIL PEARCE (Batsford. 12/6)

Here is a delightful book that gives details of construction of a wide range of models, beginning with working toys, continuing with architectural and geographical models, and winding up with a selection of the scientific type. There is something to interest everybody, and the book provides a wealth of examples that will keep the model-builder busy for quite a long time.

The working toys dealt with in the first section are all very ingenious, including pendulum and balancing toys, running and walking dogs, acrobatic monkeys, kites and parachutes, and a roundabout. The architectural models cover a wide range, and the harbour, river lock, road transport and countryside models of the next section will be helpful to readers who wish to build Dinky Toys scenes or effective backgrounds for miniature railways. The scientific models include electric motors of various kinds, air and water turbines, simple steam engines and an astro-compass, with our old friend the Cartesian diver.

Good working diagrams are provided to guide the constructor, and in addition there are many excellent illustrations, some of them in colour, showing the finished products. The book has been compiled primarily for education purposes, but it is designed for use in the home as well as in schools and will provide delightful entertainment for boys of all ages.

"BRITISH PASSENGER LOCOMOTIVES"

By R. BARNARD WAY and REGINALD W. WARDALE
(Wells Gardner, Darton. 3/-)

The object of this volume, described as a "Quick Spotter" book, is to provide the locomotive enthusiast with a ready means of identifying any British passenger engine. To this end it includes a series of characteristic broadside silhouettes of locomotives, and these are followed up by a series of photographic reproductions. The salient features of each class illustrated are detailed, and there is a brief description together with principal dimensions.

For convenience the engines are grouped according to their ownership before nationalisation, but the range of numbers given for each class is in accordance with the British Railways renumbering scheme now in progress. The illustrations on the whole are fair, but some of the information could be amended with advantage when a reprint is called for.

"THE MODEL RAILWAY HOBBY"

By M. H. BINSTEAD
(Percival Marshall and Co. Ltd. 10/6)

This book is intended to form an introduction to the miniature railway hobby and to stimulate the interest of anyone thinking of starting a model railway. It is comprehensive, yet it avoids confusing the reader with masses of frightening detail, and succeeds in its purpose of providing a link between the general run of real railway books and the many technical publications dealing with different aspects of model railway work.

The planning and equipment of a miniature railway system occupies roughly the first half of the book, in which the need for having some "idea" behind the whole is emphasised. Then consideration is given to the choice of models, with operating hints and notes on the tools that the model railway worker needs. Due attention is given to the needs of those who prefer to buy railways, or have to do so, rather than build them, and other topics covered are photography of models, garden railways, general modelling and layout design.

"CAMPING ADVENTURES IN NEW GUINEA"

By EVELYN CHEESMAN, F.R.E.S.
(Harrap. 7/6 net)

Camping is always adventurous, with its return to primitive methods and its possibility of adventures, and when the camp is in the jungles of New Guinea, a very wild island indeed, extraordinary events become certainties, as this delightful book proves. The author went to New Guinea to collect butterflies, birds, animals and plants, and she made her camps in the mountains because there the best hunting centres were to be found. She tells us how her belongings were carried over trails by natives, until she found a place in the jungle that offered a good camping site. The clearing of this and the establishment of the camp itself provides interesting reading, and the interest grows as we read how she travelled about in search of the creatures she came to collect. Hurricanes added to the hazards of life in this primitive jungle.

The account that the author gives is as thrilling as the finest adventure story. Every page is crammed with real interest, and the reader will learn much that is interesting about this strange and exciting country, and about the friendly Papuans who accompanied Miss Cheesman on her journeys, helped her to build huts and camps, and learned how to assist in her collecting. There are many illustrations showing scenes during her adventures.

"MODEL RAILWAYS FOR THE BEGINNER"

By ERNEST F. CARTER
(Percival Marshall and Co. Ltd. Four parts, 3/- each)

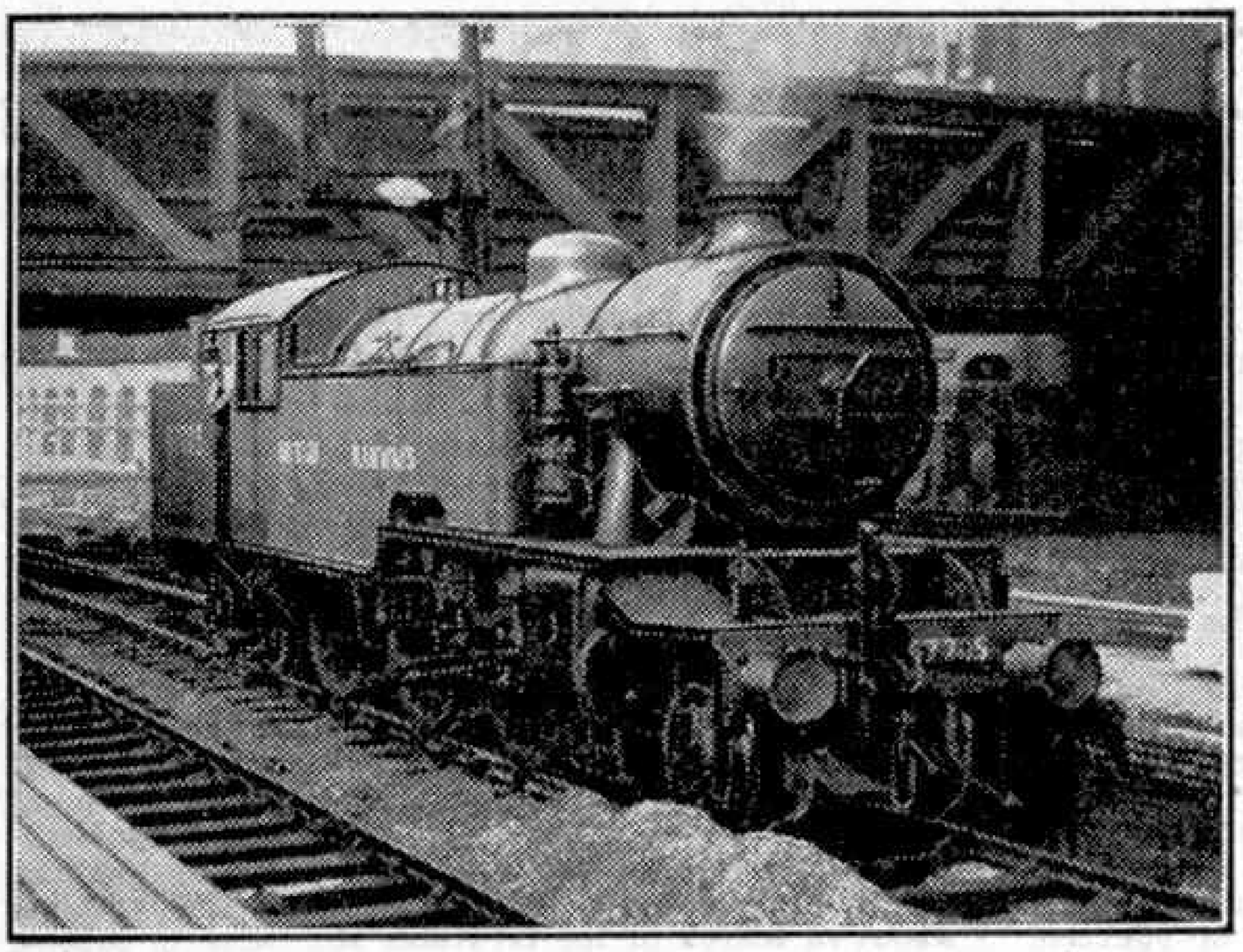
These booklets, four in number, are the work of a practical and experienced model railway enthusiast, whose aim is to help the reader to achieve more realistic results than are usually associated with the average "tinplate" railway system.

Part One gives suggestions for the improvement of a tinplate railway. Elements of the railway system, track planning and the influence of layout design on operation are dealt with, and effective running hints are given. The next booklet deals particularly with the building of accessories for a model tinplate system, and includes many useful hints on the production of scenic details and lineside equipment. The mysteries of soldering and the use of tools are introduced in Part Three, which gives practical suggestions on the construction of engines, rolling stock and bridgework, and the final stages of development from a toy railway to something more nearly approaching the real thing come in Part Four. In this the construction of small-scale permanent way is dealt with in some detail. There are useful sketches and some attractive photographs.

"WALSCHAERTS VALVE GEAR"

By HENRY GREENLY
(Percival Marshall & Co. Ltd. 3/-)

This handy manual was written by the late Henry Greenly and in this new form is revised by Ernest A. Steel. It is primarily intended for steam locomotive enthusiasts and particularly those able to build their own steam models, but will be found of interest to all who require a clear and accurate exposition of the principles involved in laying out this popular type of valve motion. Each component in turn is dealt with, and there are useful suggestions for making the various parts for steam models in order to secure a satisfactory steam distribution. Drawings and diagrams of characteristic Greenly clarity are included that can be successfully translated into actual working parts by the practical mechanic.



Eastern Region 2-6-4 tank No. 67705 in L.N.E.R. green at Liverpool Street. Photograph by Roy E. Vincent, Ilford.

Railway Notes

By R. A. H. Weight

The Locomotive Exchange Trials

Many rumours or partly true tales are flying about regarding the recent express and mixed traffic engine exchanges, especially with regard to performance, or what certain locomotives did or did not do in comparison with others; but these should often be accepted with reserve, as so many factors have to be taken in consideration by the officials who will assess the complete results after many scientific figures have been examined. We can, however, summarise briefly the principal features of some notable runs logged in careful detail by competent readers while travelling behind visiting engines.

When hauling the up "*Atlantic Coast Express*" from Exeter to Waterloo, S.R., on a return preliminary run, "7P" 4–6–2 No. 46236, "*City of Bradford*," from Camden shed, L.M.R., hauling 13 coaches, about 450 tons gross, effected a remarkable sprint east of Salisbury, following a dead stand for signals between Grately and Andover. Entering upon the favourably-graded straight stretch beginning at Worting Junction (where the Bournemouth main line joins that from the West of England) at 75 m.p.h., the next 22¼ miles to Brookwood were reeled off in 16¼ min. at an average of 84 m.p.h.! The maximum speed between Basingstoke and Hook was about 88½; later the small rise to mile-post 31 was rushed without dropping below 79 m.p.h. A severe slowing was necessary through Woking, after which running was normal; but in spite of the stop and slack the 95 min. allowance was almost kept, giving a net time of little over 85 min. for 83¾ miles, Salisbury to Waterloo.

A fortnight before, modified "Royal Scot" 4–6–0 No. 46154 "*The Hussar*," in similar conditions had time nicely in hand most of the way up from Salisbury. West of that city, the steep gradients, curves and stops made the handling of the London-bound train an exceedingly difficult proposition, particularly to a strange driver, so that although good work was done standards of timekeeping varied. In the westbound direction the timing to Salisbury was rather too liberal for test purposes.

Eastern Region "A4" 4–6–2 No. 60033, "*Seagull*," on test with the G.W.R. dynamometer car and 14 S.R. coaches, just "played with" the 505 ton train over the first stage to Salisbury. After a fast start out of Waterloo, which was left about 2½ min. late, arrival at Salisbury was 4 min. early. Over the much more difficult non-stop run forward to Sidmouth Junction, the northern streamliner did excellently to cover the initial difficult 17½ miles to Semley in less than 22 min., speeds on to Seaton Junction varying from 31½ to 81½ m.p.h., uphill and down, followed by a minimum of 25 on the most testing 1 in 80 of Honiton bank, which had to be tackled in rain and mist. On arrival there were 4¼ min. in hand.

The similar "A4" No. 60034 "*Lord Faringdon*" in the course of its first run with the 15-coach "Royal Scot" from Euston to Carlisle, when the King's Cross driver was absolutely strange to the road, ran from Crewe to Carlisle, 141 miles, in 186¾ min.; but as this included 12 min. delays due to signal or permanent way slowings, the net time was over 7 min. less than schedule. Running was cautious, with no attempt at high speed, but the climbing of the steep rises to Grayrigg and Shap was impressively accomplished, time being gained along each of these difficult stages.

Good reports are also to hand of fine hill climbing by both types of Southern "Pacific"; of some excellent starts on the Eastern Region with a heavy train by the Western "King." This engine was rather handicapped by the use of hard Yorkshire coal (burned on test runs over each route) instead of its customary soft Welsh fuel. Stout efforts by some of the mixed traffic 4–6–0s also have been reported. Enthusiasts will be recalling and arguing about those memorable weeks for years to come! Several lesser exchanges are also taking place.

Engines Ancient and Modern

Two of our illustrations this month depict venerable locomotives of strikingly different type which are fortunately being preserved as representatives of a bygone age. In 1946 we mentioned the closing of the Wantage Steam Tramway in Berkshire. The 90-year old tank engine which worked thereon for nearly 70 years, with her original name "*Shannon*" restored, after overhaul in Swindon Works has been placed upon a pedestal at Wantage Road main line station, W.R.

The Adams outside-cylinder 4–4–0 express engines of the L.S.W.R. were deservedly famous in the early part of this century. There were variants in the classes, as was usual among 4–4–0s of that line, large or smaller wheeled. No. 563, chosen for preservation and repainted in the old "greengage" shade with stovepipe chimney, was exhibited at Waterloo to celebrate the station's centenary with a coach finished in L.S.W.R. salmon and brown and containing second class accommodation reminiscent of 40–50 years ago.

In complete contrast, the third illustration shows one of the new standard L.N.E.R. type 2–6–4T now numbered 677xx, several of the latest of which are finished in black, lined red and grey.

Eastern and North Eastern Regions

The new "A1" 6 ft. 8 in. 4–6–2 No. 60114 was rapidly completed at Doncaster in time to be included in a fine exhibition of rolling stock on July 17–18. It was accompanied by No. 525 "*A. H. Peppercorn*," "A4" No. 60029 "*Woodcock*," which is a streamliner in darker blue than normal, the pioneer large "Atlantic," now restored again as G.N.R. 251, and others.

A2 No. 60538 is stationed at Gateshead, and

No. 60537 at Leeds (G.N.). Further "B1" 4-6-0s have lately been numbered and shedded as follows: Nos. 61330-1, Peterborough; 61332-3, Cambridge; 61334, Norwich; 61326-7, Gorton; 61329, Peterborough. New 2-6-4Ts Nos. 67725-6 are allocated respectively to Neasden and Hitchin. Smoke-box door number plates are now appearing in greater numbers.

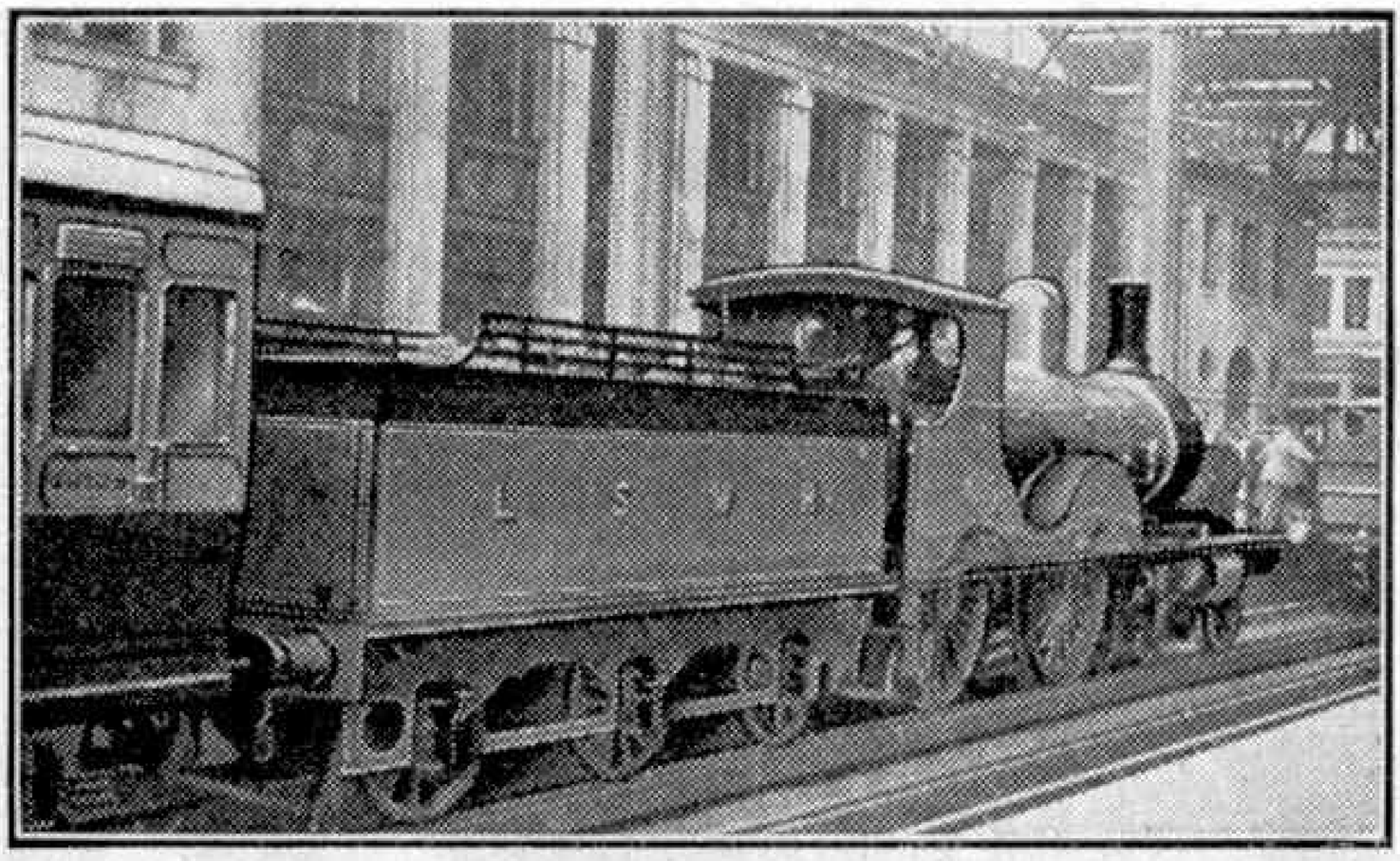
Western and Southern Tidings

Continuing the construction of "Castle" 4-6-0s at Swindon, Nos. 7010-12 have been placed in service, named respectively "*Avondale Castle*," "*Banbury Castle*" and "*Barry Castle*," the first of these is stationed at Paddington (Old Oak Common). New 0-6-0Ts 9671-2 were allocated, one to Laira (Plymouth), the other to Salop. No. 6927 has been named "*Lilford Hall*." Several experimentally painted W.R. locos. have recently been occasioning surprise, but the temporary plan of the Railway Executive as recently reported on these pages is being followed.

"Battle of Britain" 4-6-2 No. 34077 had been finished at Brighton by the middle of July last, with more building. No. 34004 "*Yeovil*" completed the very long journey back from Perth, after running trials over the Highland Section of the Scottish Region with apparent success. This "West Country" left Euston piloting a "Royal Scot" on an ordinary express. Another small batch of former S.E.C.R. and L.B.S.C.R. engines of both tender and tank varieties has been condemned for scrapping, a fate also being shared by several former L.S.W.R. tanks.

A most interesting selection of engines ranging in age from a few months to more than 60 years were noted in service within four hours at Tonbridge on the Eastern Section main line, or at Tunbridge Wells West, 5 miles away, which is now one of the principal steam hauled passenger centres of the Central Division. No. 2253, a "D1 tank" still merrily working pull-and-push or short corridor trains, is 66 years old. The "I3" 4-4-2Ts are much in evidence at Tunbridge Wells, but the "I1x" 4-4-2Ts and the "D3x" 0-4-4T are down for withdrawal.

The public were admitted to platform 5 at Waterloo terminus on a recent Monday to see rapid track relaying by machine. With the aid of wagons on the adjoining line, 840 ft. of track were relaid with 60 ft. pre-assembled units weighing 4¼ tons each. As we write these notes holiday traffic is at its height, adding to the interest of lineside observation.



Part of the Waterloo Centenary Exhibition. Adams 4-4-0 No. 563 and a typical L.S.W.R. coach repainted in characteristic style. Photograph by H. C. Casserley, Berkhamsted.

The veteran "Shannon" of the Wantage Tramway being lifted into position for preservation at Wantage Road station, Western Region. Photograph by H. J. Milligan, Abingdon.

London Midland Region

After completing 51,300 miles in service, mainly between St. Pancras and Derby, Britain's first main line diesel locomotive No. 10000 went into Works for examination during July, having demonstrated power to travel and accelerate well beyond requirements of present average loads and timings. The second similar unit, No. 10001, meantime had gone into experimental service on the Midland Division prior to the trial of the two together from Camden shed on Euston-Glasgow expresses.

An electrically operated coaling plant is to be installed at Crewe North Motive Power Depot. Self-closing sliding doors provided with draught excluders are being tried in open vestibuled coaches running between St. Pancras and Manchester, which may lead to the removal of discomfort to passengers occasioned by thoughtless leaving open of doors causing draughts while the train is running.

During a pageant week at Conway, North Wales, organised by the Stationmaster, who is also Mayor, to celebrate the centenary of the Irish Mail Route, historic engines exhibited included the 2-2-2 "*Cornwall*" built in 1847, and the famous 2-4-0 "*Hardwicke*" built in 1873.

The latest new engines reported, with class and shed, are: "4P" 2-6-4T No. 42154, 24D, Lower Darwen; No. 42155, 24B, Rose Grove; Nos. 42156-7, 25F, Low Moor; Nos. 42158-9, 24C, Lostock Hall; No. 42160, 23D, Wigan; Class "5" 4-6-0 mixed traffic Nos. 44738-9, 44741-2, 7A, Llandudno Junc.; No. 44740, 5A, Crewe N.; No. 44743-5, 44756, 20A, Leeds; No. 44698-9, 29A, Perth, Scottish Reg.; 0-6-0 diesel-electric shunter No. 12046, 18A, Toton; main line diesel No. 10001, 1B, Camden after trials on Midland Division.

* * * *

Recent track renewal at Manchester (London Road, Eastern Region) involved pre-assembly of 341 separate track sections, using 40 tons of rails and over 1,000 chairs.

Our photographs are by courtesy of Doulton and Co. Ltd.

How a Royal Doulton Figure is Made

FROM the Royal Doulton Potteries during the past forty years have come more than two thousand individual figure creations. Even a casual glance at any of these figures reveals unmistakable evidence of creative imagination, patient craftsmanship and technical skill. The process of producing a Royal Doulton figure is a long and painstaking one, involving the closest attention to detail at each successive stage; only thus is it possible to achieve the subtle and translucent colour effects, the delicate modelling and the fine details of facial expression which differentiate these figures from attempts to emulate them by mass-production methods.

As soon as the artist-designer has developed his original inspiration on paper or in clay—according to his individual method of working—a working model is prepared in plastic clay. The next step is to produce from this a set of master moulds in plaster of Paris. One mould does not suffice, of course, for a complete figure; it would be impossible to remove it. The figure has to be cut up in a number of separate pieces, for each of which a separate mould is made. These moulds are masterpieces of ingenious craftsmanship, for each dissected part of the model must fit perfectly when the various pieces are finally assembled. Each mould is used only a limited number of times and is then replaced—one reason why all Doulton figures are indistinguishable in exactitude of detail from the original model.

Subsequent copies of the model are made by a process known as slip-casting—a method believed to have been used by the ancient Egyptians and Greeks for many of their pottery figures and greatly perfected in modern times. A liquid mixture of specially prepared clays and other ingredients is poured into each separate mould.

The porous plaster absorbs the water and the inner surfaces of the mould

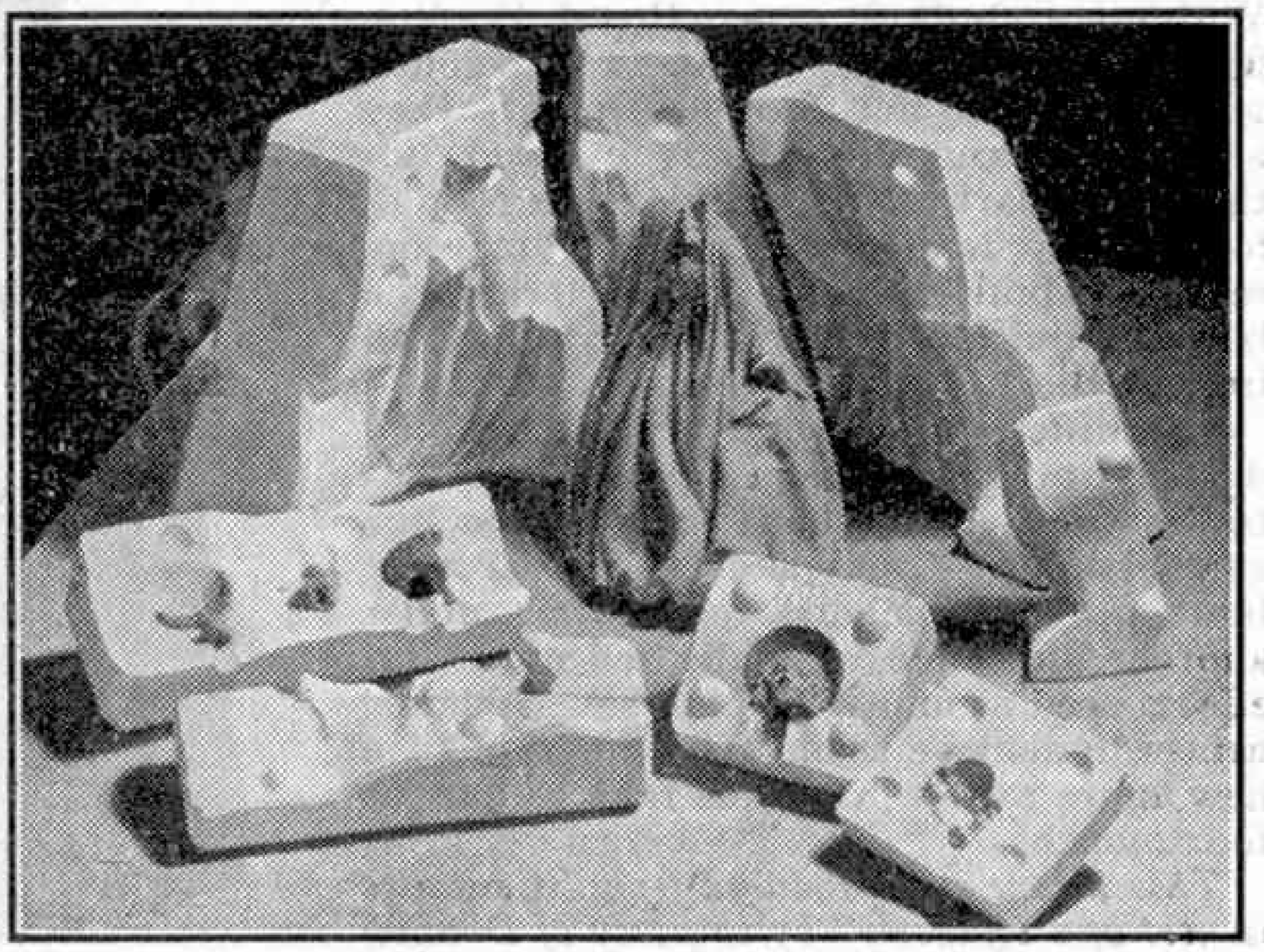
Pouring liquid clay (known as "slip") into the assembled moulds to form the cast model.

gradually become lined with a coating of "set clay." The filling of the moulds is done by figure-makers, each one a seasoned veteran at his or her job, knowing just how long the "slip" (or liquid clay) should be left in the moulds in order that the casting may have the right thickness and strength. At the proper time, the superfluous liquid is poured away and—after an interval for drying—the moulds are opened up and the various pieces are carefully removed and trimmed. They are then fitted together into a complete model, a process demanding great precision and delicacy of touch.

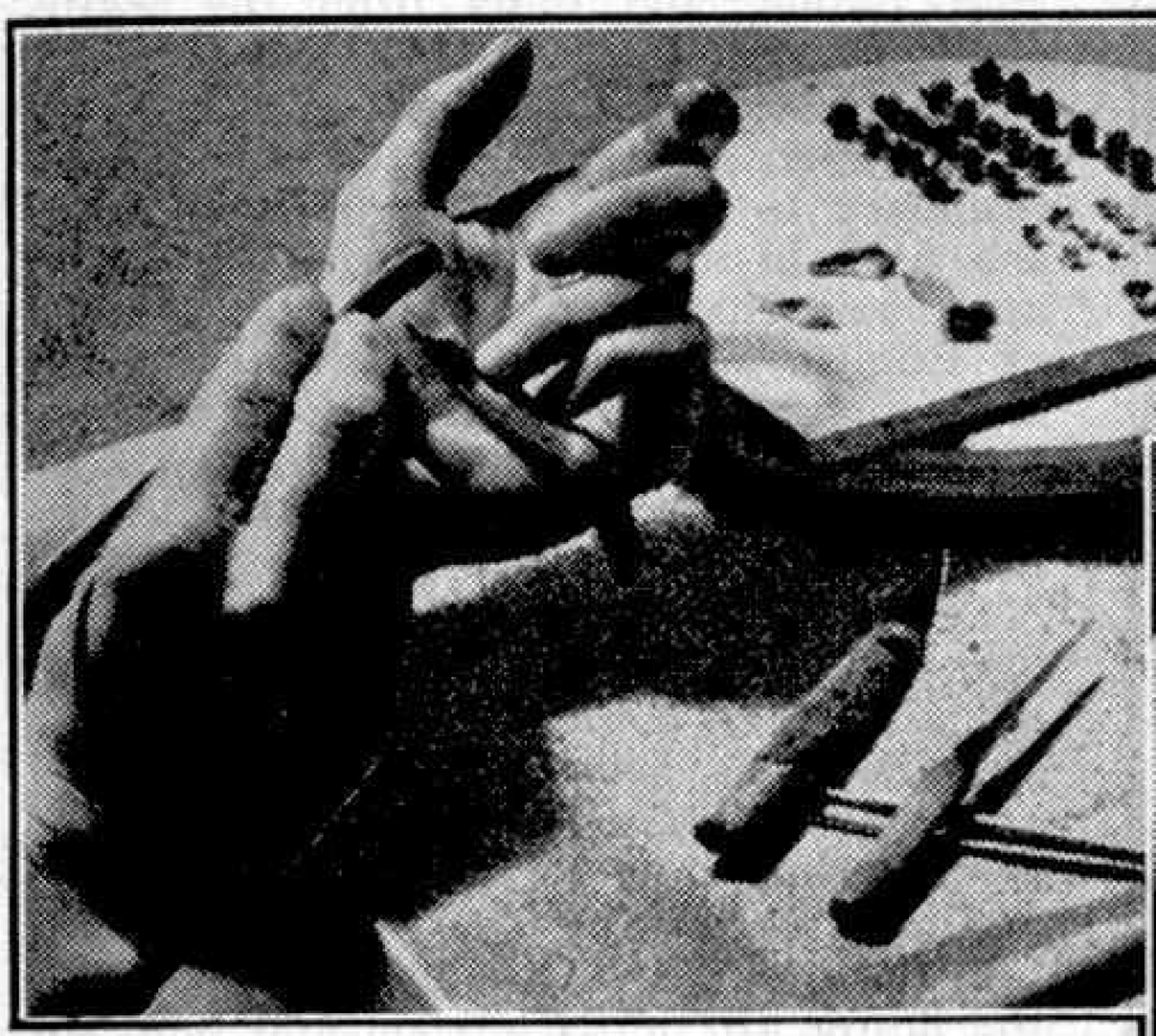
It should be mentioned, in passing, that the preparation of the "slip" mixture plays just as important a part as any subsequent process in ensuring the quality of a Doulton figure. The materials used are not "just clay." Nearly half the mixture consists of bone ash made from calcined ox-bone, other ingredients include the best china and ball clays in the world—from Cornwall, Devonshire and Dorsetshire; Cornish china stone; and flints from the white chalk cliffs on the Kentish coast. English fine bone china owes both its name and its unique translucency, strength and resiliency to the large proportion of bone ash used in its composition; it has been aptly said that "bone forms the skeleton of English china." All the ingredients are ground to such a degree of fineness that the liquid mixture will pass through a sieve which has some 40,000 holes to the square inch.

Let us consider the "Lady Charmian" figure. This is made from five different moulds and is completed by the addition of hand-made flowers. Flower-making is a specialised branch of work. Each flower is made separately by hand. A roll of clay is thinly spread on the hand and from this the petals, stalks and other parts of the flower are deftly shaped and built up into the form of a flower.

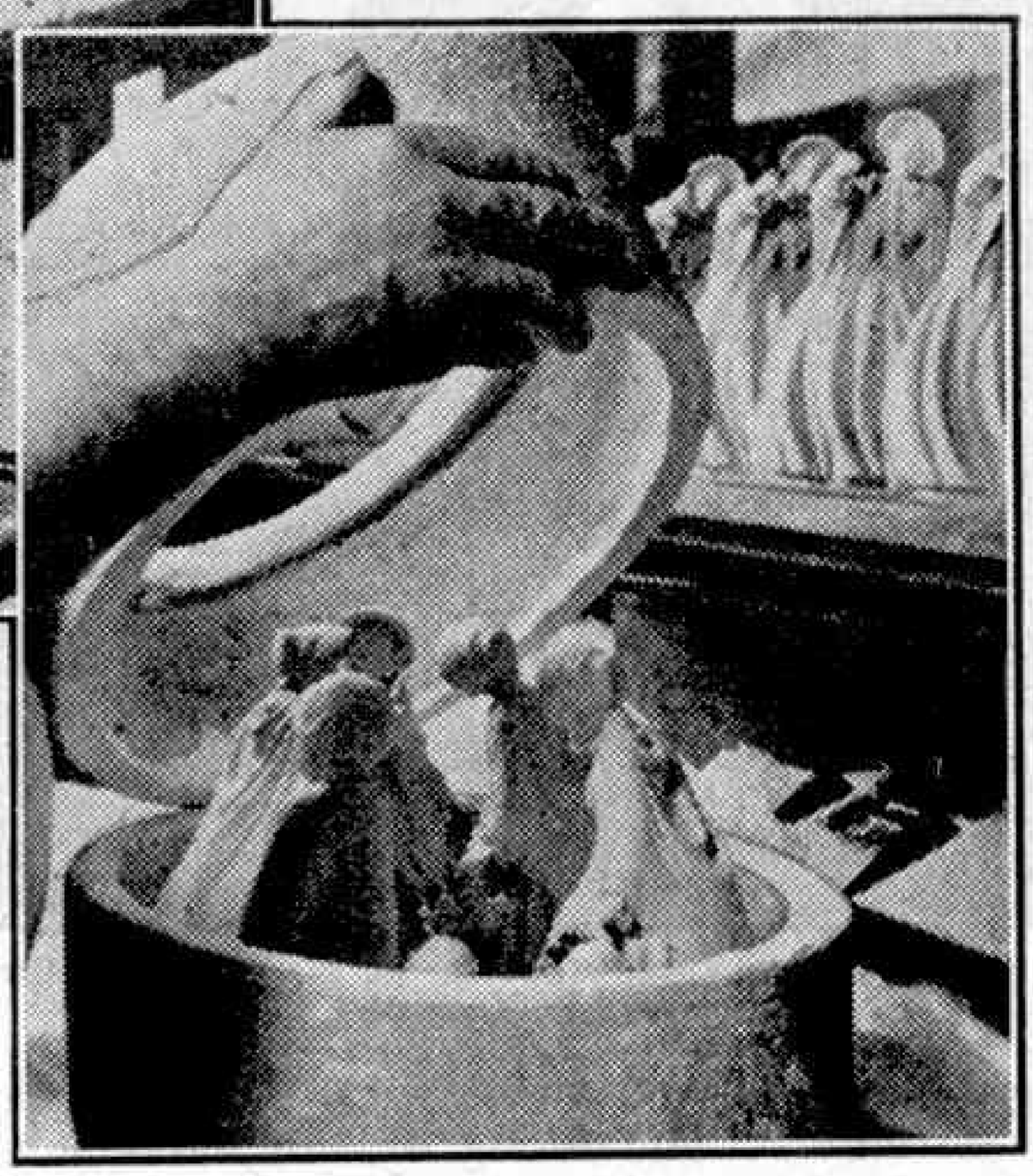
After having been assembled and finished in the clay state, the figure is slowly dried to remove surplus water before the first major firing. It is then placed with others in a fireclay container which in turn is placed in a pottery oven, in which it is fired or "baked" at a temperature far beyond the melting point of most metals. This firing changes the clay into a pure white body known as "biscuit china." The firing temperature at various stages has to be most accurately controlled—if the heat were one or two degrees too intense the figures would be distorted or destroyed; yet it is only by approaching the danger-point that the translucent beauty which characterises a



The various pieces of the cast model.



(Left) Each little flower petal is made entirely by hand. (Bottom) Models are placed in fire-proof saggars, before being fired, to protect them from the naked flames.



Royal Doulton figure can be achieved.

Each figure before going into the oven must be secured by a number of props to prevent projecting parts from falling out of shape. An interesting point is that during firing each figure shrinks considerably in size and this factor has, of course, to be taken into account when forming the master moulds.

After this first firing the figure has a matt surface. It is dipped into a specially prepared glaze and then receives its second hard firing in what is known as a "glost" oven. The glaze coating fuses during this process and becomes virtually a thin coating of glass, giving a beautiful but not excessive sheen to the ware.

From this stage onward, the artists decorate the white translucent figure. Without exception, every Royal Doulton figure is coloured by hand. The colours, of course, are not ordinary paint; they are special ceramic colours evolved, for the most part, from metal bases. Gold, for example, is the base of the rich maroon, red and pink tones. Cobalt forms the basis of the blues, tin of the whites, and iron of the browns and blacks.

As different colours will withstand different temperatures, a figure usually has to be fired at least three times in the enamel kilns. Tones have to be carefully built up and blended one on or under another, and some especially delicate colour effects need as many as six or seven enamel firings to achieve them. The creation of a new figure model may thus take as long as four months.

This article is reproduced from "Ceramics in Art and Industry" by courtesy of Doulton and Co. Ltd.

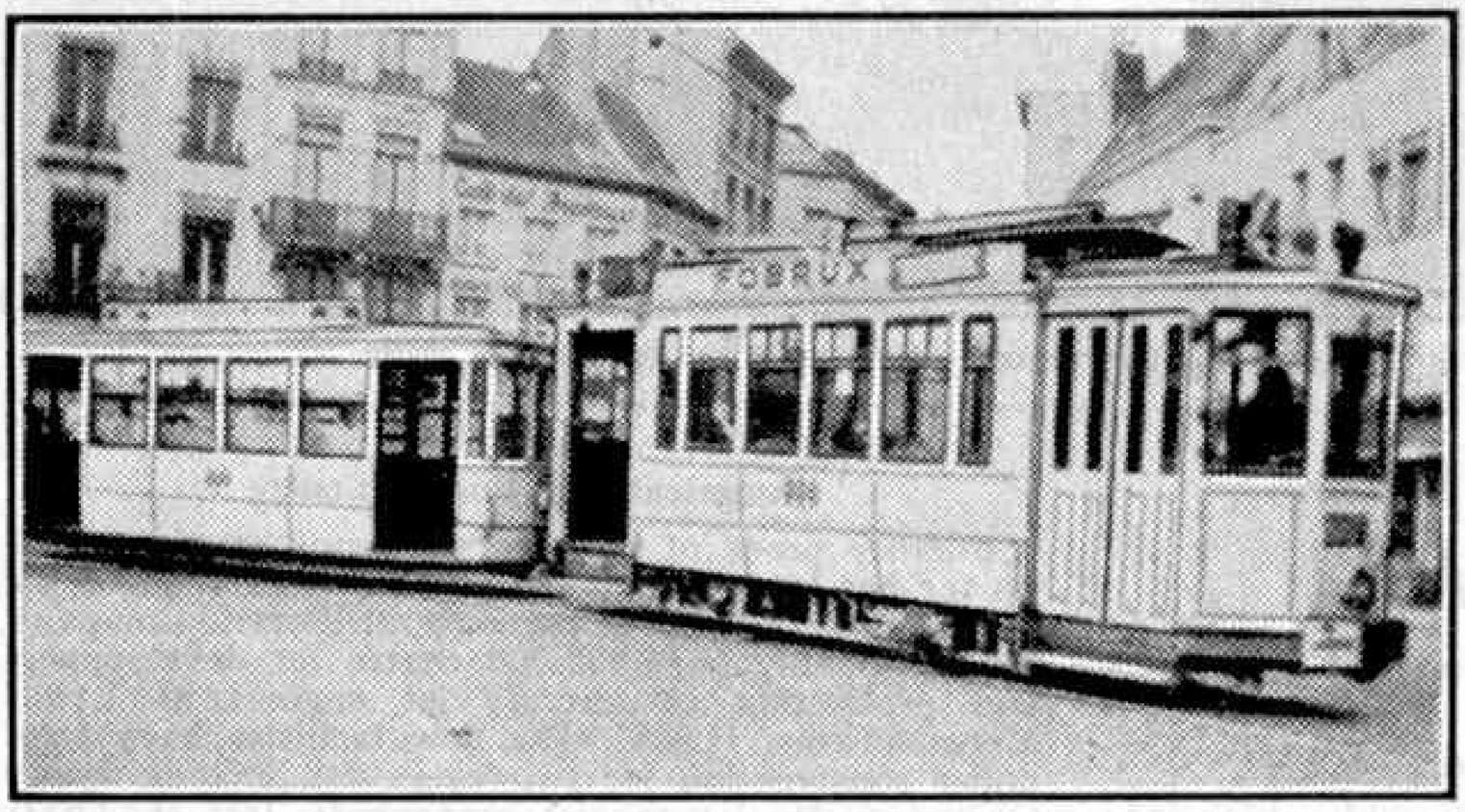
The completed model of "Lady Charmian."

From Our Readers

This page is reserved for articles from our readers. Contributions not exceeding 500 words in length are invited on any subject of which the writer has special knowledge or experience. These should be written neatly on one side of the paper only, and should be accompanied if possible by original photographs for use as illustrations. Articles published will be paid for. Statements in articles submitted are accepted as being sent in good faith, but the Editor takes no responsibility for their accuracy.

THE TRAMWAYS OF BELGIUM

One by one, our English city corporations are scrapping their tramway systems in favour of buses.



Tramcar No. 229, with trailer, making the circuit of the Schoenmark, or Shoe Market, Antwerp. Photograph by F. Dickinson, Lytham St. Annes.

To those of us who deplore the passing of the tram, it is a sheer delight to revisit continental towns where the bulk of public transport for almost half a century has been handled by the quaint little street cars, with their inevitable motorless trailers.

During the war years, the citizens of Belgium had good cause to be thankful for the survival of the tramway systems, for their German conquerors commandeered practically all of the buses for military use, leaving the ancient cars to carry the heavy traffic of the cities and urban districts.

To-day the noisy, clattering trams are everywhere, just like old times. Repainting and overhauling have been carried out with commendable speed and efficiency, and many new cars are to be seen on the streets too. The latest examples are mainly of the eight-wheel, bogie variety, built of steel and capable of fairly high speed. Their design is modern, and they are powerful enough to haul three or four trailers, all fully loaded. And by "fully loaded" I mean packed to the very doorsteps!

Boarding a tram in Antwerp or Brussels at the rush hour is a regular "free for all." No orderly queues, such as one sees in England; just a mad scramble to get aboard. Those unlucky enough to gain admission to the platform stand on the step and cling for dear life to the handrail. It is almost impossible to collect fares, but nobody seems to mind, and the hardest task is to get off when you arrive at your destination.

Most of the town trams are content with one trailer, in charge of a separate conductor. He pulls a bell-string connected with the towing car, and the driver awaits the "all-clear" from each of the cars before starting. Occasionally one sees a single car without a trailer, looking rather lonely as it rumbles along unaccompanied, but on the suburban routes one sees the oddest collection of vehicles. The first car is generally a bogie eight-wheeler, and it tows four or even five others, perhaps one long eight-wheeler, one regular four-wheeler and two semi-open cars rather like cattle trucks. They are all "single-deckers."

On reaching the city limits the track ceases to be a tramway, and the stone setts give way to sleepers and a regular railway track, running alongside the highway and branching into loops every 400 or 500 yds. The routes extend for many miles into the country districts.

No street is too narrow for trams in Belgium. The resultant traffic jams are sometimes comical in the extreme, especially when a string of cars is halted on a corner, effectively blocking the street intersection for the time being. The clanging of car bells and the hooting of motor horns creates a rare bedlam! In the narrowest streets, where there is insufficient room for a double track, one generally finds a one-way single line, the returning cars using the next street.

The tramway companies are not ambitious in their colour schemes. In all the cities I visited the cars were painted in a simple cream design with fine black lining of panels.

F. Dickinson
(Lytham St. Annes).

The old mill at Mowbray, Cape Province. Photograph by R. W. Wilson, Rondebosch.

AN OLD SOUTH AFRICAN MILL

The old mill at Mowbray, Cape Province, shown in the accompanying illustration was built in 1796 and is preserved in working order by the Historical Monuments Commission. Only an eighth of each sail is dressed, but this is sufficient to cause the machinery to turn in a wind. The gearing connecting the shaft with the millstone is of wood. The top of the mill revolves, and there is a device for turning the sails into the wind. Near the mill is a circular enclosure about 21 yds. in diameter. This is an old threshing floor of the type where the corn was laid on the floor and oxen were driven round it to beat out the grain with their hooves.

R. W. Wilson (Rondebosch).

The Fairey "Gyrodyne" making the record flight referred to on this page.

Air News

By John W. R. Taylor

Helicopter Speed Record

On 28th June, last, a new International Speed Record for helicopters was established by the Fairey "Gyrodyne," which averaged 124.3 m.p.h. over a 3-km. course near White Waltham Aerodrome, Berks. It is the first time a British aircraft has ever gained this record, and is convincing proof of British progress in rotating-wing design. The "Gyrodyne," which was piloted by Squadron Leader Basil Arkell, was designed by Dr. J. A. J. Bennett, formerly with the Cierva Company.

The "Gyrodyne" is the first of a completely new class of aircraft, combining the best features of an Autogiro and a helicopter. It has a motor-driven main rotor, but instead of a tail anti-torque rotor it has a standard tractor propeller at the end of its starboard stub wing. This propeller not only counteracts the torque of the main rotor, but contributes forward thrust—hence the "Gyrodyne's" comparatively high speed. Fairey's also claim greater comfort, through reduction of vibration, and greater safety, as the main rotor is permanently in or very near the auto-rotative pitch range.

American Jet Engine Centre

Further proof of America's determination to make up for her late start in jet engine design is given by the announcement that the General Electric Company are completing a £6,000,000 centre for development and production of aircraft jet engines at Lynn, Massachusetts, U.S.A. The new facilities have been under construction for two years and include a test laboratory for jet engine components, test chambers for operation of jets at sea-level conditions, low-temperature starting cells and a test-stand for turbo-prop engines, as well as full manufacturing and assembly facilities.

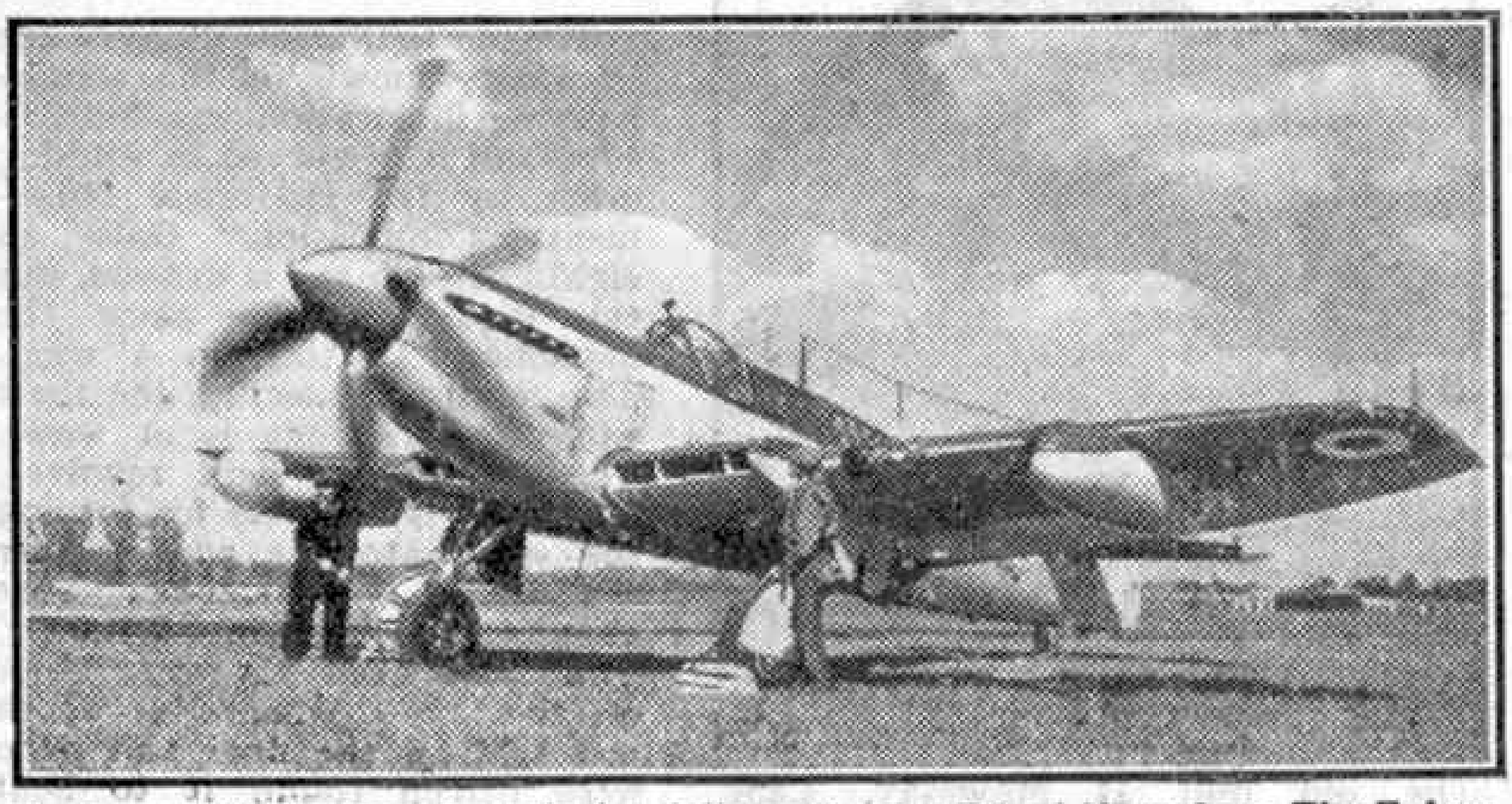
It is significant that a General Electric jet engine powers the Douglas "Skystreak," which holds the World's Absolute Speed Record, while the 5,000-lb. thrust General Electric J-47A (TG-190) is the most powerful engine in production in America. It will be used in all future U.S.A.F. combat aircraft, including the swept-wing North American F-86.

1,000th Fairey "Firefly"

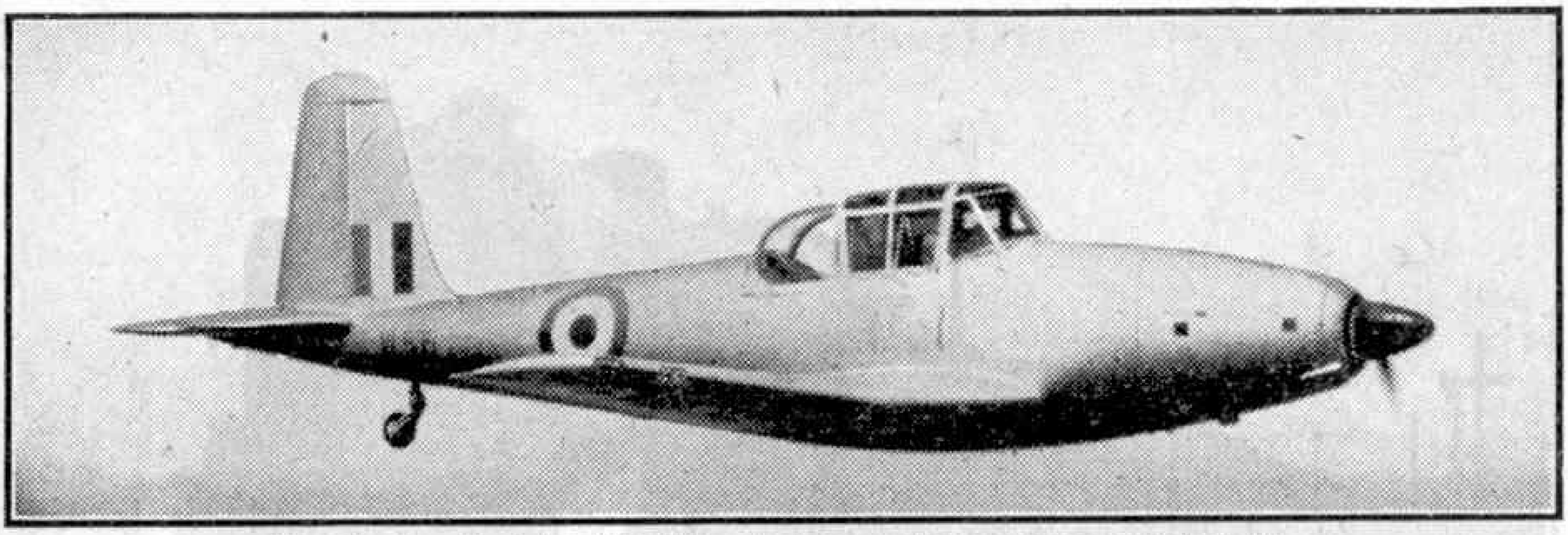
In July last, the 1,000th "Firefly" two-seat fleet reconnaissance-fighter built by The Fairey Aviation Company at their Hayes, Middlesex, factory, came off the assembly line. This achievement is quite apart from production in other factories.

The 1,000th machine was one of the new "Firefly" Mk. 5s, which have superseded the well-known Mk. 4 in production. They are basically similar to the earlier Mark, powered by a Rolls-Royce "Griffon" 74 engine and armed with four 20 mm. guns, bombs and rockets. The "Firefly" 5 exists in three versions: day reconnaissance-fighter FR5 with radar equipment, night fighter NF5 with search and "tail-warning" radar, and the anti-submarine AS5 with search radar and sono-buoys.

An idea of the popularity of the "Firefly" can be gained from the fact that it is in service with the Royal Navy, Royal Canadian Navy, Royal Netherlands Navy and Royal Australian Navy. A two-seat trainer version is also in service with the R.N., R.C.N., and R.N.N., while a number of target-towing conversions are being delivered to Sweden.



Newly-built "Firefly" 5 ready for delivery to the Royal Navy from The Fairey Aviaton Company's factory at White Waltham.



The Boulton Paul "Balliol," the first gas-turbine trainer aircraft to fly.

Gas-Turbine Trainers

The new Boulton Paul "Balliol" and Avro "Athena" are the first gas-turbine powered trainers ever built. They were developed to Air Ministry specification T7/45, and each uses a single Armstrong-Siddeley "Mamba" turbo-prop, developing for take-off 1,010 h.p. plus 309 lb. of jet-thrust. The idea behind the specification was to provide the R.A.F. with an advanced trainer intermediate between its "primaries" and operational trainers, an aircraft which would have all the characteristics of a "jet" and yet be as easy to handle as a normal trainer.

I attended a recent Press demonstration of the "Balliol" at Bitteswell Aerodrome, near Rugby, and there is little doubt that it has these qualities. Its pilot, Squadron Leader Price-Owen, obviously had complete confidence in the novel power unit, and some of his "beat-ups" and vertical banks were very low indeed. At that early stage of its development aerobatics were forbidden for the "Mamba-Balliol," but a similar aircraft powered by a Bristol "Mercury" piston engine was put through a very spectacular aerobatic display, including climbing rolls, loops and sustained vertical banks, which proved its superb handling characteristics.

The "Balliol" and "Athena" are low wing monoplanes with retractable tail-wheel undercarriages, and the "Balliol" has folding wings to facilitate hangar stowage. Both are three-seaters, to conform with Air Ministry practice of carrying a second pupil to build up air experience, and are equipped for synthetic night-flying training by the two-stage amber method of tinted Perspex windscreen panels. Top speed of the "Balliol" is 307 m.p.h.; that of the "Athena" 287 m.p.h. They carry a single .303 in. machine-gun and a camera-gun for armament training, plus small practice bombs. Until the "Mamba" is in production, it is probable that both aircraft will go into service with Rolls-Royce "Merlin" piston engines.

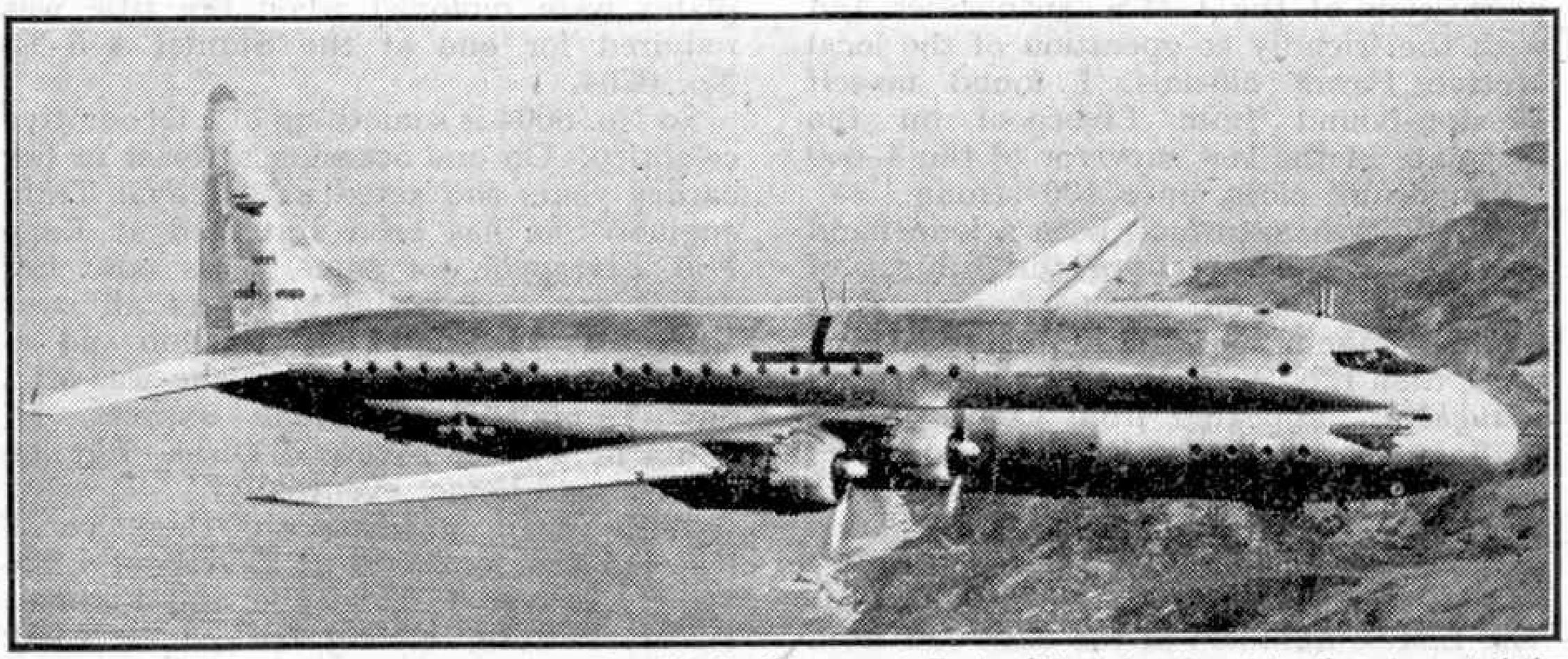
New R.A.F. and U.S.A.F. Designations

Arabic numerals will be used in future instead of Roman numerals to indicate all mark numbers of aircraft, aero engines and other equipment used by the Royal Air Force and Naval Aviation. So, for example, the "Sea Fury" Mk. X fighter now becomes the "Sea Fury" Mk. 10. Arabic numerals have for some years been used to denote mark numbers above 20.

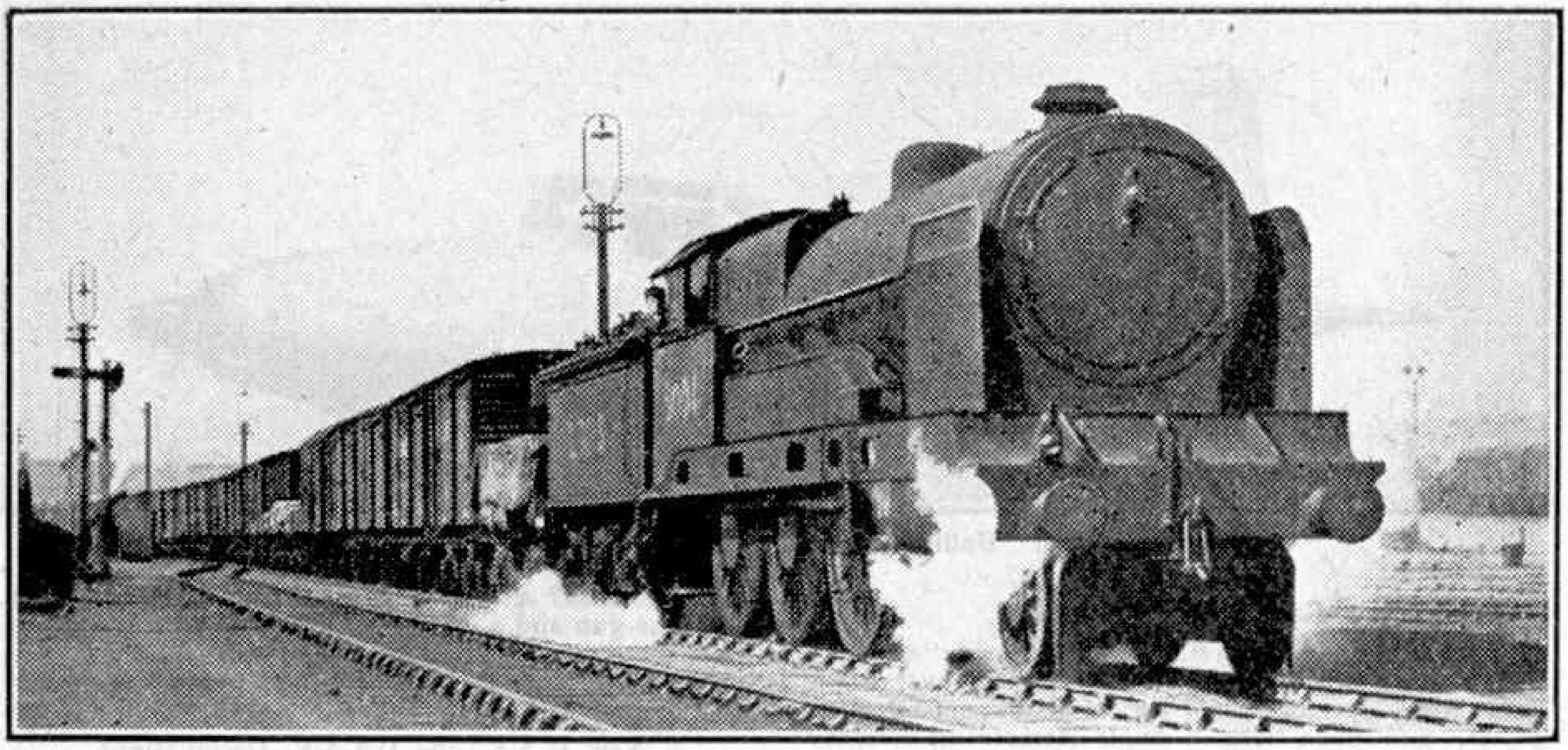
The U.S.A.F. too has made changes in its system of aircraft designations. In future all its fighter aircraft type numbers will be prefaced with the letter "F" instead of "P" (Pursuit), so that the P-80 "Shooting Star" will in future be known as the F-80 "Shooting Star." Similarly Experimental Research aircraft will be prefaced with "X" instead of "XS" (*i.e.*, Bell X-1) and helicopters with "H" instead of "R." The designations for bombers (B), cargo (C) and liaison aircraft (L) remain unchanged.

Handley Page "Marathons"

An announcement by Sir Frederick Handley Page has confirmed that his company is to build the "Marathon" air liner, 40 of which are on order for the Ministry of Supply and British European Airways. Production aircraft will be powered by four 380 h.p. "Gipsy Queen" engines, but the engine mountings are so designed that other types of engine can be fitted. The normal payload will be 18 passengers and 540 lb. of luggage for a range of 500 miles.



The U.S. Navy's 180-passenger Lockheed "Constitution" transport. Tests of the take-off and landing characteristics of this great aircraft were recorded with special equipment described in an article on page 296.



L.M.S. No. 6004, the last of the "Claughtons," leaving Edge Hill with a fast freight train. Photograph by Canon E. Treacy, Keighley.

The Last of the "Claughtons"

A Footplate Journey on L.M.S. No. 6004

By "North Western"

REALLY the Editor started it all. He pointed out that runs with new modern engines have often been described in print, while trips with older locomotives, and particularly with lone survivors of a class, are rare. *"What about L.M.S. No. 6004; the last engine of its class, one of the few remaining ex L.N.W.R. express engines and now the only red one; the only non-standard engine of Class 5X and with the last remaining red-painted tender of the L.N.W.R. type?"*

So one morning last summer, by special permission of the L.M.S. authorities and with the friendly co-operation of the local Motive Power officials, I found myself Preston-bound from Liverpool on the footplate of the last survivor of the 4–6–0 "Claughton" class, once 130 strong.

No. 6004 has, in fact, been a lone hand since 1941 and has been the subject of eager attention on the part of lineside number takers. The first engine of the class, then L.N.W.R. No. 2222, *"Sir Gilbert Claughton,"* appeared from Crewe Works in January in 1913. Four cylinders all connected to the leading driving axle were incorporated, with outside Walschaerts motion. Construction continued until 1917 and a further 70 appeared in 1920-21. The L.M.S. numbers of the class ran from 5900 to 6029. In 1928 larger boilers with 200 lb. steam pressure were fitted to 20 of them. Ten of these reboilered engines were provided with Caprotti poppet valves and gear. The others, including No. 6004, retained the Walschaerts motion. The original smaller-boilered series had vanished by 1935.

Although the earlier engines were named when built, some of the class remained nameless throughout their careers. Others had names added after building. Among these was the subject of my story which, as L.N.W.R. No. 42, acquired the name *"Princess Louise"* in 1922. The nameplates were removed when the title was required for one of the Stanier 4–6–2s, No. 6204.

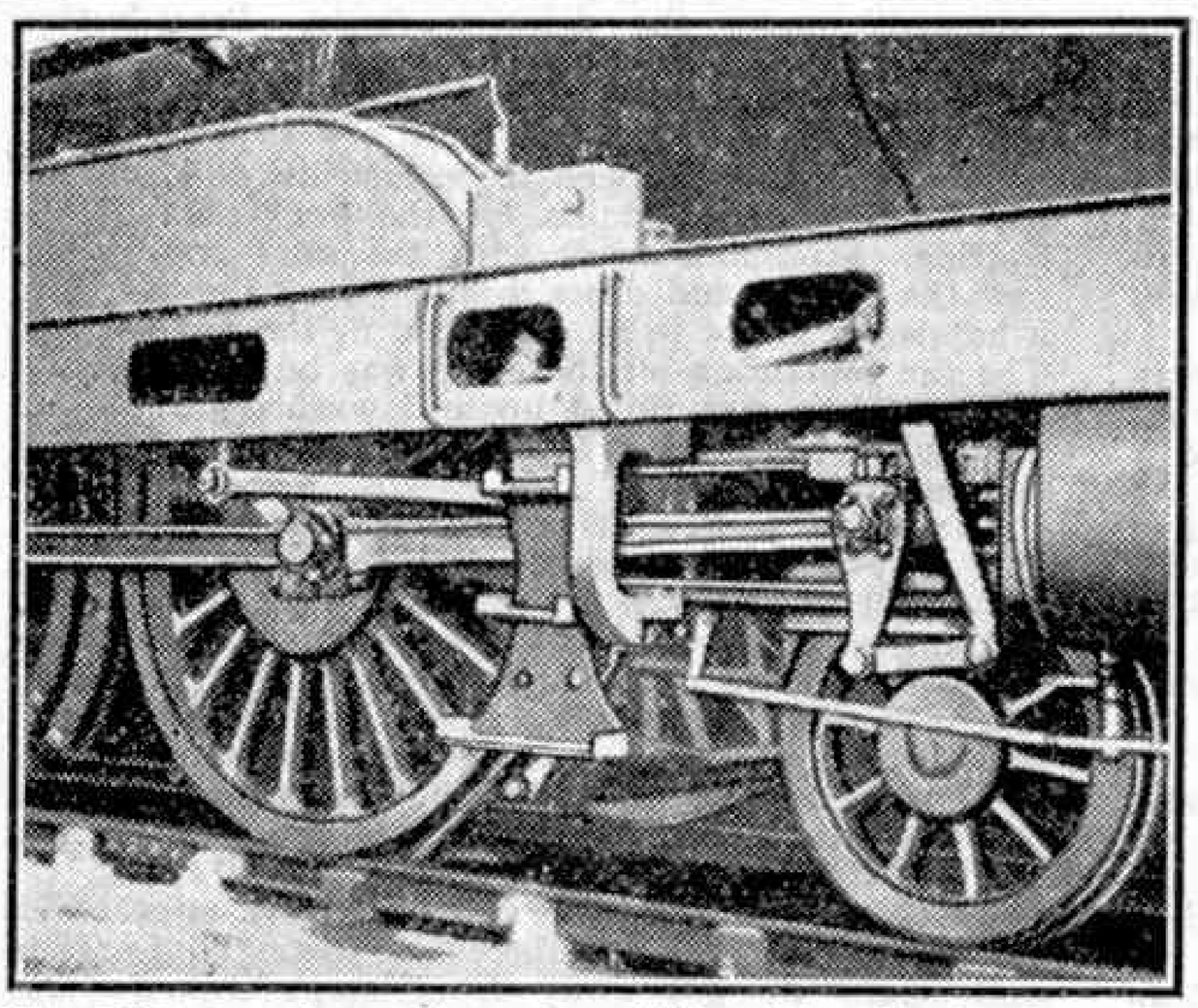
So No. 6004 is something of a locomotive celebrity. On one occasion at least in her earlier years she acted as a Royal Train engine. She has been stationed at Edge Hill, Liverpool, for some years now; her duties are varied and she gets all over the place; Carlisle, Stoke, London and so on. Only a year or two ago she was seen on a London-Birmingham express, no doubt in between Liverpool turns. But she always gets home, eventually!

With keen anticipation therefore I boarded the footplate at Liverpool Lime Street. Driver T. Heywood and Fireman H. Mackintosh, having booked on early in the morning and carried out the routine of preparation, had taken the 6 a.m. from

Lime Street to Wigan. They had just returned when I joined them, and were waiting to shunt the stock so that the engine could be turned ready for the 11.5 a.m. to Wigan, working on with the 12.45 p.m. thence to Preston.

On this duty the engine is handled successively by three sets of men in the course of the 24 hours. The first crew are relieved at Edge Hill when the 11.5 a.m. stops there. The second crew work the engine to Wigan and on to Preston. Returning with the 4.20 p.m. from Preston they in their turn are relieved, again at Edge Hill, by the night men. The latter bring the train down into Lime Street, get the engine turned and take the 7.15 p.m. to Preston. Their return trip is made with the 11.40 p.m., reaching Liverpool once more at 12.59 a.m. After shunting the train the engine is due on the shed at 1.54 a.m. for "disposal"—ashpits, coal stage, water column and examination. Then after an hour's "preparation" she is ready for the daily round once more.

I made myself at home on the footplate and time soon passed until shortly before 11 o'clock when we hooked up to a modest



The Walschaerts motion of a "Claughton," showing the characteristic short connecting rod and the compact nature of the gear.

train of four coaches only, perhaps 120 tons or so.

A brisk start was made with 195 lb. showing on the pressure gauge and the water gauge indicating a "full glass." The engine was worked in full gear for some distance, the valves then cutting off at 75 per cent. Notching up to 40 per cent. occurred when we were well under way up the stiff climb to Edge Hill. This vigorous treatment brought a hearty response from the engine as we threaded our way up through the historic cutting leading to Edge Hill.

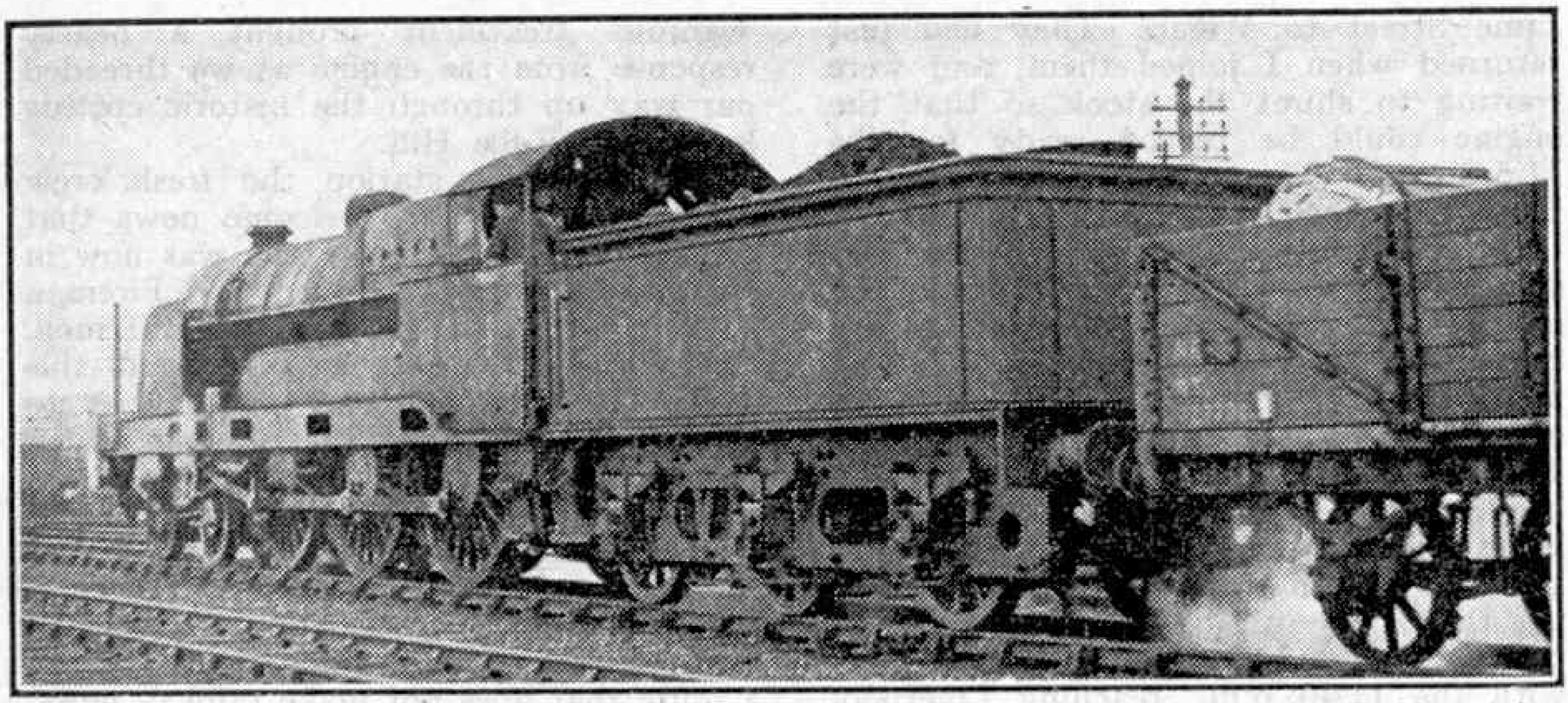
At the latter station the fresh crew came aboard to the welcome news that *"She's all right."* The engine was now in charge of Driver W. Rogers and Fireman J. Holt, another pair of Edge Hill men. *"She's a good strong engine,"* said this Driver in answer to my enquiry as to how he liked her; and the Fireman added that she was rather a thirsty one! On this turn the absence of water troughs and the somewhat restricted capacity of the tender make it necessary to keep a sharp eye on the water supply.

We were an "all stations" train, taking a route that does not make railway news. It was therefore a journey of successive starts and stops, but even so smart running was necessary in between stations. Repeatedly the same scene was enacted after each *"Right Away."* No. 6004 would be started in full forward gear and the train allowed to get well on the move before any shortening of the cut-off was made.

First the whistle; a succession of those deep, dignified "Claughton" puffs, rapidly increasing in tempo with our bouncing, galloping gait. Then notching up to about 30 per cent. with full regulator was the order of our going. Soon after would come the shutting-off of steam, the easing out of the cut-off to the usual drifting position and the first touch of the brake.

Meantime the fireman was not idle. A few shovelsful of coal carefully placed to keep a bright, even fire would be followed by a spell during which the boiler feed would require adjusting. A glance at the pressure and the water gauges and when required he would keep a sharp look-out over the side for signals, especially those seen more easily from the fireman's side of the cab. In addition he was always ready, immediately before the regulator was shut, to put on the blower in order to prevent a back draught.

Firing the long, narrow and fairly shallow grate required a different technique from that observed on my footplate journeys with Class 7 No. 6202. As with so many of the bigger L.N.W.R. type engines, much of the coal had to be pitched well forward on to the fire. On modern standard types with their sloping grates the



No. 6004 on a "down" goods at Berkhamsted. This recent photograph is by H. C. Casserley, Berkhamsted.

fire is kept well up under the door and in the back corners. The motion of the engine helps to shake the coal forward.

The design of the bigger L.N.W.R. passenger engines incorporated double spiral springs for driving and coupled axles, which are fairly lively in their action. The cab did bounce a bit, but owing to the four cylinder layout characteristic of the "Claughton" design and its good balancing effect, the engine rode well for a 4-6-0.

So the stations were ticked off one by one in my notebook: Broad Green, Huyton, followed by the junction where we diverged from the Manchester main line, Prescot; Eccleston Park with its wooden platform, Thatto Heath and then industrial St. Helens famous for its glass products. Mining activities were soon evident in this district of slack tips and "flashes"—local name for a mere or sheet of water. Then came a lengthy slowing to 15 m.p.h. said to be due to a subsidence as the result of mining operations.

Hereabouts a sharp rainstorm smote us so fiercely that once a reduction of speed was necessary owing to the difficulty of picking up the signals. Then I realised more than ever the Spartan nature of the footplate accommodation on even the largest L.N.W.R. class. To add to the general discomfort, hailstones clattered down, and then almost as quickly, the weather eased as with a whistle we came to Springs Branch Junction on the outskirts of Wigan. Here we joined the West Coast main line to the north and were soon alongside Wigan platform.

Water was taken from the platform column and we disposed of our now empty train. Next we picked up a six-coach formation that was to be the 12.45 p.m. to Preston. Coal was got forward and in preparation for the fire-cleaning that would be carried out at Preston, some preliminary shaking up of the fire was carried out. The morning's coal had not been too good and had clinkered somewhat. So first came the dart, rather a playful name for that long and heavy straight poker with the blunt arrow-shaped head, to break and prise up the mass of clinker on the firebars; then the bent pricker to rake the fire over. These lengthy weapons need careful handling, for they are heavy; and they get hot!

This job over we found that we were to attach another engine working back to Preston. No. 5718 "*Dreadnought*" came on in front and our headlamp was taken off. Thus well horsed the train got away in good style, although the line rises sharply out to Boar's Head where we did not stop, but then eases somewhat past Standish, only to stiffen and then ease again before the summit is reached near Coppull. From this point the tendency of the road is falling almost all the way to Preston. Moving at a jog-trot, firing was light, and with stops at Balshaw Lane, Leyland, famous for its motors, and Farington with its tall signals and various junctions, we came within sight of Preston.

Here we hooked off from the train and, still coupled to our pilot, went forward to "*Preston No. 4*," a long signal box to the north of the station. No. 5718 was detached and went forward on the shed to take coal, while we followed, but made for the water column. A visit to the vacuum turntable saw us headed about ready for the return run. Then at the mechanical coaling plant our tender was carefully "spotted" under the delivery chute. Press-button operation makes coaling a simple but still rather a dusty operation and I took refuge in the operating cabin.

Our fuel supply looked more healthy now and we moved off to the ashpits for the next part of the routine. Strenuous work with the dart and paddle saw the clinker and dross dumped over the side into a hopper or chute to be quenched in the wet ashpits. The fire remaining on the grate was built up lightly, the footplate was tidied up and washed down, and we made for the "back road," a siding at the edge of the engine yard.

There was plenty to watch while we stood there, and very soon, it seemed, after our fire had been well built up for the return run, we drew forward to the head of the engine yard about 3.30 p.m. After a short wait we ran gently forward to the station. We picked up our empty stock, six coaches again, and a little shunting was necessary before we had the train ranged alongside the platform. Boiler pressure was rising all the time now, ready for starting time.

The return journey was comparatively uneventful, schedule being closely adhered to throughout. Time and again we got away from stops smartly and worked up into speed with that galloping gait which I found quite exciting. Yes, the engine was lively; as a result of the fire cleaning and of the rather better coal we had taken on, pressure was readily maintained without excessive "music" on the part of the safety valves.

At Wigan our arrival was hailed with delight by a knot of schoolboy "spotters" to whom 6004 was obviously a capture, and who excitedly enquired as to what shed she belonged. We took water at Wigan and with the "crow" on the whistle prescribed for the Liverpool road at Springs Bank Junction, we left the West Coast main line and headed for Merseyside.

At Lime Street once more, I reluctantly left 6004, now in charge of Driver Todd and Fireman Morgan, to carry on with the next part of the duty. I had enjoyed a most entertaining day on the footplate that will not soon be forgotten.

British European Airways photograph.

Britain's Helicopter Postmen

By John W. R. Taylor

FOR the last few months the people of thirteen towns and villages in East Anglia have been served by a new postman—no ordinary postman either, but one who delivers no less than 4,000 letters each day over a 270-mile "beat."

I watched the start of this interesting new service from Westwood Aerodrome, Peterborough, on 1st June last. The "postman"—a Sikorsky S-51 helicopter belonging to British European Airways—was parked on the aerodrome, surrounded by scores of journalists and Press photographers. Just before ten o'clock a way was cleared through the crowd for a little red G.P.O. van, out of which clambered two postmen who began to load small sacks of mail into the helicopter's cabin. Meanwhile the pilot, John Theilmann, was handed a Royal Mail pennant—the official badge carried by those entrusted with His Majesty's mails—and within a few minutes the helicopter was airborne on its way to King's Lynn, the first calling-point. After King's Lynn it dropped in, literally, at Wells, Sheringham, Cromer, Norwich where it was refuelled, Thetford, Diss, Harleston, and on to Great Yarmouth. The total journey of 170 miles was covered in 2 hours 54 minutes.

The return journey followed a different route, leaving Great Yarmouth at 5.35 p.m. and calling at Lowestoft, Beccles, Norwich and Dereham, reaching Peterborough at 7.30—a total distance of 102 miles.

That flight has been repeated on Monday to Friday of each week since then, with a shorter non-stop service between Peterborough and Norwich on Saturdays. B.E.A. hope to prove that they can maintain a 96 per cent. regularity in all weathers, and save as much as 12 hours a day over surface routes, 48 hours at week-ends. An idea of the efficient ground handling at stage-points can be gained from the fact that the scheduled stopping-time for unloading and loading mail at each is only 40 seconds, while refuelling at Norwich is accomplished in five minutes.

The B.E.A. Helicopter Unit which operates the new service was formed at Yeovil in October 1947, following successful helicopter mail-carrying experiments in the Los Angeles districts of California, U.S.A. It is equipped with three Sikorsky S-51s and two Bell 47B-3s, although the Bells are not really suitable for such work because of their small load. The S-51s normally carry about 340 lb. of mail, but can accommodate up to 700 lb. if necessary, cruising at 85 m.p.h. over a range of 100 miles. Wing Commander Brie—a pioneer rotating wing pilot—is in charge of the Unit, his five pilots all being ex-R.A.F. or Fleet Air Arm helicopter pilots.

Early this year the Unit operated an experimental service carrying dummy mail over a 120-mile route in Dorset and Somerset. It achieved such remarkable success in wintry conditions that the Post Office was persuaded to give the scheme a proper try-out carrying real mail this Summer. Although hardly an economical proposition at present, the new service undoubtedly opens up great possibilities for speeding delivery, especially in outlying or rugged country such as the Highlands and islands of Scotland.

An Ancient Clock Restored by Welding

By T. R. Robinson, F.B.H.I.

A MOST unusual application of the welding process was made in the restoration of the ancient clock in the tower of Coningsby Church, near Boston, Lincolnshire. This strange old timekeeper, whose great dial is 16 ft. 6 in. in diameter, is claimed to be the largest of the antique "one-handed" form still in existence. It had become disused after serving the village faithfully for many years. Its long stoppage led to a suggestion that it should be replaced by a modern clock, but this proposal raised strong local protests, for it was pointed out that the clock was not only a unique possession, but was also of great historic interest.

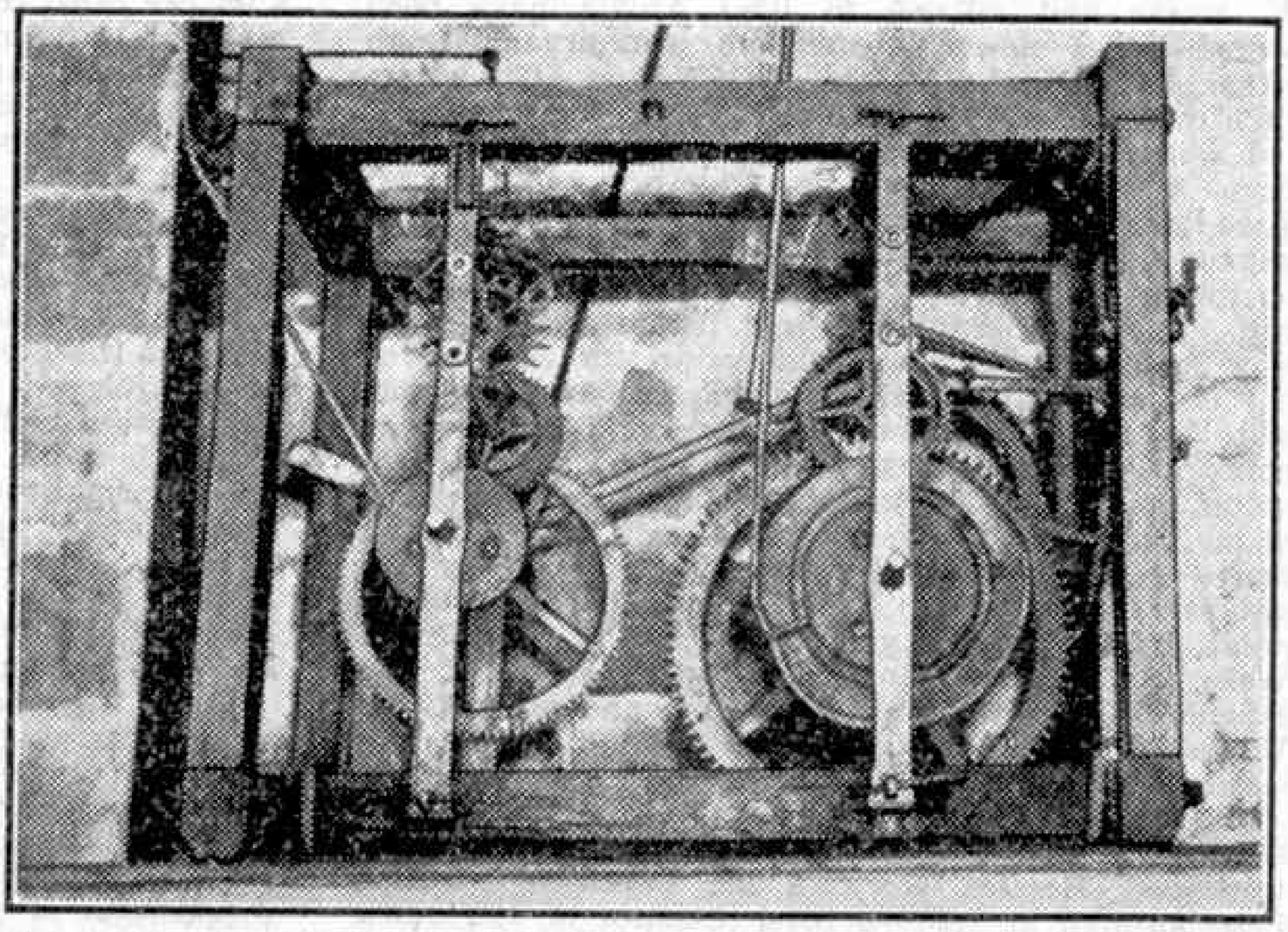
After some discussion, the advice of the present writer was sought as to the possibility of repairing the old machine. Examination showed that the clock was by no means beyond repair, and it was decided that the mechanism should be completely restored. As an attempt was to be made to retain every possible original part, it was also suggested that welding might be used to build up some components and so make good the wear. Messrs. G. and F. Cope and Co. Ltd., a Nottingham firm who make considerable use of welding in both repairing and the construction of new clocks, were accordingly asked to carry out the work, and they did this very successfully in spite of the peculiar difficulties encountered.

The mechanism of the Coningsby clock is most unusual, for the main framework is made up of wooden beams, fitted together to form a rectangular structure. Spanning these beams in a vertical direction are iron bars, into which are fitted the bushes forming the bearings for the spindles of the timekeeping and striking trains. The bars are fastened to the wooden beams by wedges, for there were no screwed fittings in the clock when it was first constructed.

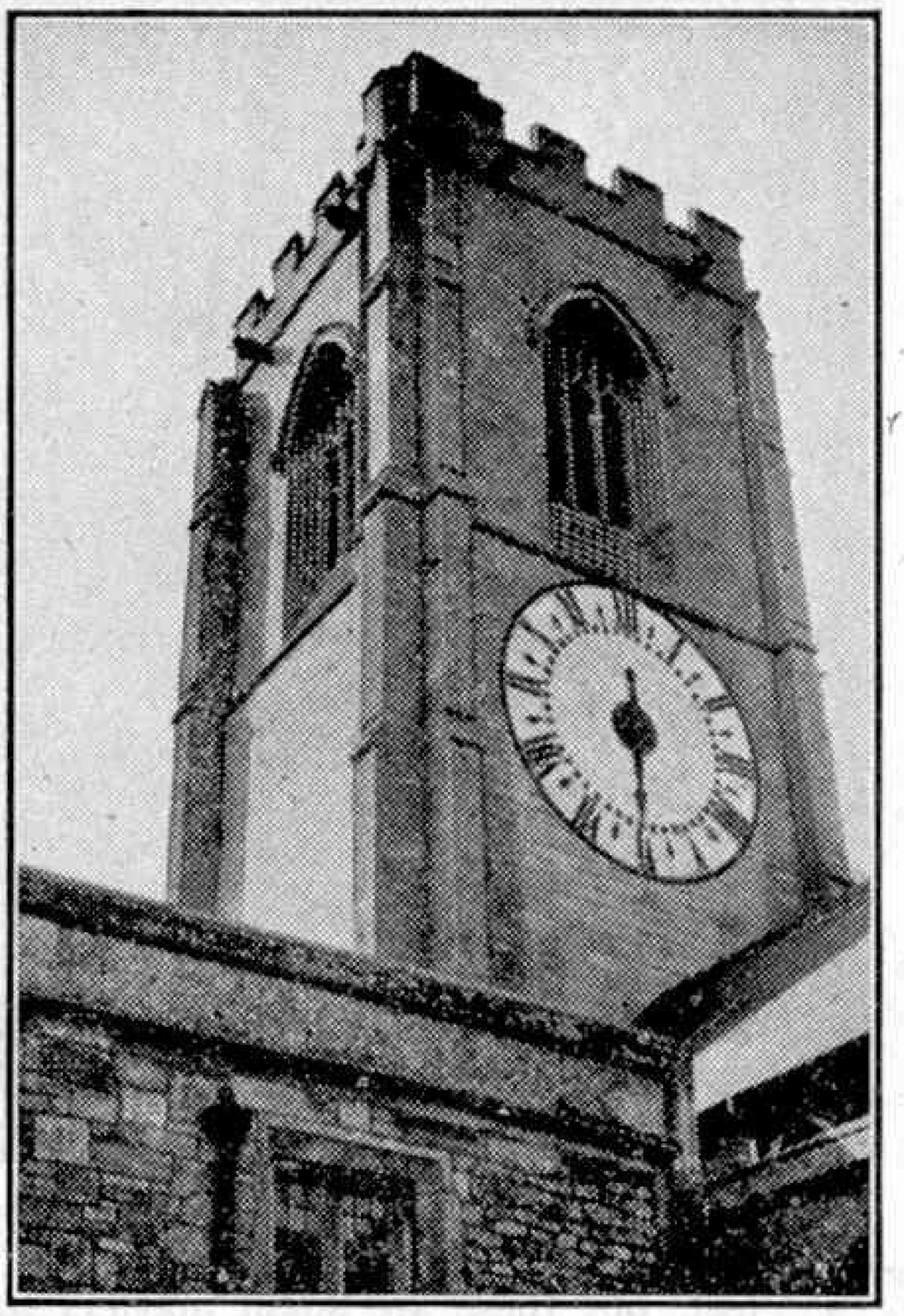
With the exception of the escape wheel, which is obviously a replacement, the wheels are all of wrought iron, and appear to have been the work of an exceptionally clever smith. Spokes and rims were made separately, and assembled by riveting, and although this must have entailed some very careful work, the wheels all run with remarkable truth and accuracy. All the wheel teeth are hand-cut, the tools employed apparently being a chisel and a file. Wheel-cutting machines were quite unknown when this clock was made, and careful division of the circumference, followed by the chiseling out and hand-shaping of each tooth, was the only way in which wheels of this kind could have been made. At some points the division was not perfect, and was afterwards corrected, but the astonishing feature is the smoothness with which all the wheels and pinions run.

The escapement is of the old "recoil" type, but, as previously mentioned, the escape wheel is not the original. Its workmanship suggests that it was fitted about the beginning of the 19th century, the pallets being probably of the same date.

The pendulum, which is some 15 ft. in length, makes one swing every two seconds, and is not hung from the clock frame in the usual way, but is suspended from a bracket fixed in the tower wall. The pendulum rod is an iron strip, and the bob is a heavy cheese-shaped mass of lead. A rather strange method is used to link the pendulum to the pallets. The



The mechanism of the ancient clock at the church of St. Michael and All Angels, Coningsby, Lincolnshire, showing the wooden frame, iron train-bars, and timekeeping and striking trains.



The dial of the Coningsby Church clock is 16 ft. 6 in. across. It has only one hand.

crutch, or rod attached to the pallet spindle, projects upward instead of downward, and a horizontal coupling rod connects it to the pendulum.

There are only three wheels in the timekeeping part of the clock, the main wheel rotating once in two hours. The rear pivot of the main-wheel spindle is lengthened beyond its bearing, and carries a small "contrate" wheel, by which motion is transmitted to the long shaft leading up to the hand spindle at the dial centre. The main-wheel also releases the striking mechanism, by means of two pins placed at diametrically opposite points in its rim. The pins raise a lever, unlocking the striking wheelwork and then releasing it exactly at the hour.

The striking mechanism also is very simple, for it too has only three wheels. Sturdy pins, set in the rim of the main-wheel, engage with a lever, and so lift the striking hammer in the belfry above. The speed of striking is controlled by a "fly," or air-brake, and the striking of the correct number of blows at each hour is governed by a locking-plate, which is really a kind of programme wheel, with suitably spaced notches cut in its edge. An interesting point about the locking-plate at Coningsby is that it is of the same type as those on the famous West Country clocks at Exeter Cathedral and Ottery St. Mary Church.

The weights of the clock are two heavy masses of stone, which now hang from steel wire ropes. The original ropes were of hemp. The weight of the striking mechanism was not made heavy enough, for the barrel on which its rope is coiled has been increased in diameter at some time by adding an outer layer of pieces of wood, the idea being to increase the effective leverage exerted by the weight.

When the repair work was started, it was found that the acting faces of the teeth on practically all the iron wheels were badly worn, and that there was considerable wear in the levers and detents of the striking release mechanism and the hammer lifting levers. All the bearing bushes were so worn as to need replacement, and the striking hammer and the spindle of the hour-hand were seriously rusted and worn. In a normal repair job these parts would have been scrapped, but in this instance it was decided to employ electric arc welding to rebuild the defective components. Each worn tooth on both wheels and pinions was carefully built-up with new metal, and afterwards filed down, re-shaped and smoothed on its acting surfaces.

By this means most of the wheels and pinions were brought back almost to their new condition, and it was only necessary to replace two of them. These were the escape pinion and the striking locking wheel. Owing to its somewhat severe duty this wheel was in very bad condition, and it was decided that its complete replacement was the only possible course. A new wheel therefore was cut from mild-steel plate, $\frac{3}{8}$ in. in thickness, by the flame-cutting process, and the locking flange was attached to the side of the wheel blank by welding. After this the teeth were cut in the circumference. A modern wheel-cutting machine was used in the production of the teeth, but the tooth form chosen was, as nearly as possible, the same as that used for the original wheel. The resulting wheel is practically identical in appearance with the original, but is considerably better and stronger.

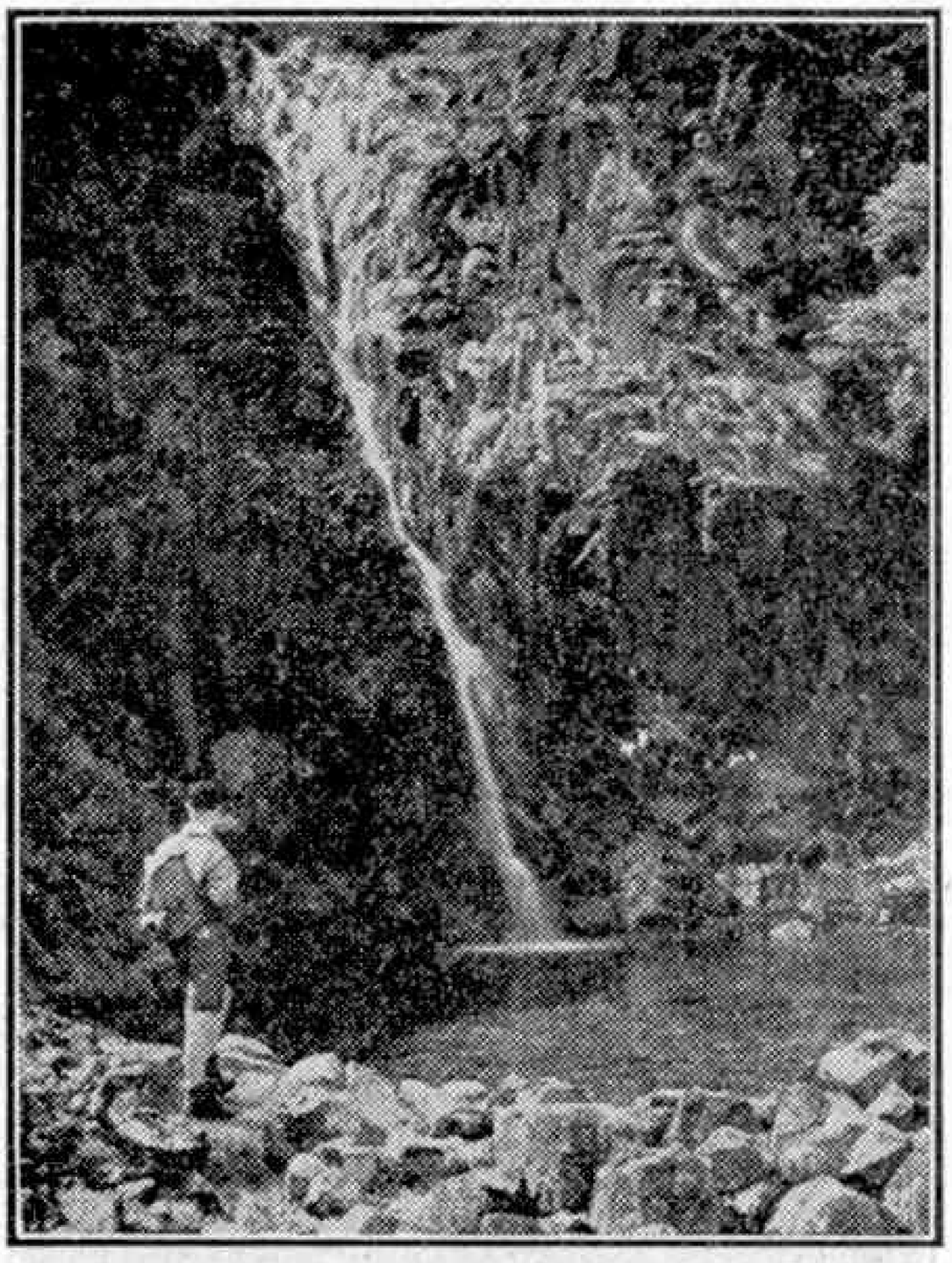
The same careful building-up by welding was followed on the worn parts of the levers and other components, resulting in greatly improved action, with better striking on the (*Continued on page 326*)

Photography

Water in Pictures

IT is surprising how many of the best pictures of the countryside include a stretch of water in the form of a lake, a pond or a stream. Even the most ordinary view acquires a certain amount of interest from the presence of water. Take the picture below showing an old mill; this gains most of its interest from the reflections in the water. Test this for yourself by covering up the water; you will realise how much of the interest has vanished. There is something very restful and attractive about almost any picture that includes reflections of this kind.

Woodland waterfalls are always attractive, but they are difficult to deal with because an exposure that is right for the surrounding trees and rocks is usually far too long to give the effect of moving water. A compromise is generally necessary, and if this results in even a fairly good picture it is usually worth having.



The Lakeland Fall. Photograph by J. D. Robinson, Darlington.

(Above) "The Mill," Old Linslade, Bucks. Photograph by S. Kyle, Leighton Buzzard. (Right) "The Dipping Bridge," near Bridgend, Glam. Photograph by D. Jones, Bridgend.

A small stream running through interesting country is always well worth following. Some of its windings are almost certain to provide attractive pictures. This kind of thing often involves rough scrambling and wet feet, but these are small matters to the enthusiast.

Many photographers find their interest in the hobby greatly increased as the result of specialising, either entirely or only partly, on subjects of a particular type. Old bridges, for instance, provide a tremendous amount of suitable material, and good subjects are to be found in almost every part of the country. It is very interesting to try to dig up the history of the bridges we have photographed. The bottom illustration on this page is a good one of the type we have in mind. An album of bridge pictures suitably "written-up" would be of real value.

Club and Branch News

BACK TO THE CLUB ROOM

September is a month of transition. The outdoor season is usually carried over into it, and every opportunity of arranging some ramble, excursion or visit in its earlier days should certainly be taken. By the end of the month we are definitely in the Club room season, however, and now is the time to take steps to ensure successful meetings in the Winter Sessions.

The first thing to do is to compile the programme. There is no better way of deciding this than by calling a general meeting, in preparation for which the Leader and officials should draw up schemes to submit to the members, who can either approve them or suggest variations. Freedom of speech is a necessity at meetings of this kind. Members should be encouraged to give their opinions on the suggested programme—and to demonstrate how it can be improved!—but in its final form the programme must receive the endorsement of all present at the meeting. General agreement as to what should be done is necessary to ensure success.

There are two special points that must be considered. The first concerns the Club room. Unless this is cheerful in appearance and well fitted there is a danger that Club proceedings will be drab and lifeless. There are limitations to what can be done, especially in these days of shortages, but no effort should be spared to make the very best of the accommodation available. Working space on tables or shelves should be ample, storage accommodation should be provided, and everything should be made neat and tidy. The general appearance of the Club room can easily be brightened by the use of a little paint where necessary, and colour can be imported by the use of posters. I should be glad to forward a small parcel of these to any Club that can make effective use of them. They are also of the greatest value for use on Open Nights or at Exhibitions.

MORE MEMBERS MEANS MORE FUN

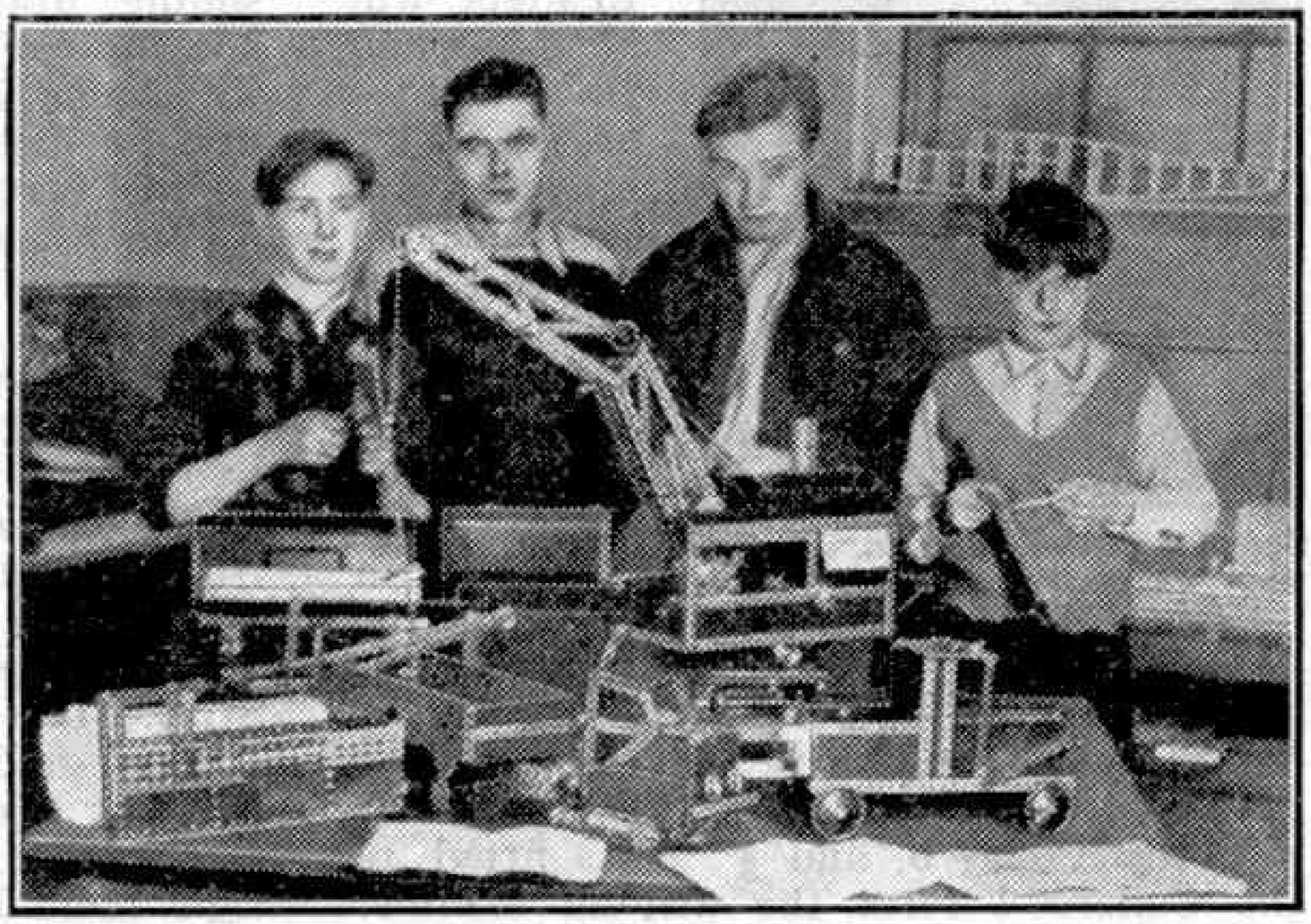
The second special point to keep in mind is the need for recruiting. The number of members must of course be limited by Club room accommodation, but apart from this it should always be borne in mind that the more the merrier. There are many good ways of attracting recruits. One is to send in regular monthly reports so that Magazine readers in the vicinity learn of the existence of a Club and of the good times that members enjoy. Another is for each member to canvass his friends who own Meccano Outfits, and to urge them to take the best way of getting the most enjoyment from the hobby.

Leaders can adopt any other special means that may suggest themselves to bring along new members, but it must always be kept in mind that the very best argument in favour of joining a Meccano Club is the spectacle of a happy band of enthusiasts, whose activities are revealed through Exhibitions and other special events arranged during the sessions. It is no good trying to get recruits unless it is clear that the Club is worth while joining.

Secretaries should make sure that they have stocks of report forms and membership cards. I shall be glad to send supplies of these to any Club in need of them.

CLUB NOTES

Boston M.C.—Cricket and Cycle Runs have continued to be the chief summer occupations. One cycle trip was made to Spalding to see a model aircraft exhibition. Several members have themselves constructed model aircraft. Club roll: 7. *Secretary:* P. E. Luff, 103, Woodville Road, Boston, Lincs.



Members of the Kimount (Vancouver) M.C., Leader, Mr. B. I. Kershaw. This newly-affiliated Canadian Club has been founded by Mr. Kershaw with the support of the Kiwanis Club, a Vancouver organisation sponsoring youth clubs. Its members have already established a reputation for enterprise and sound model-building by displays at various Exhibitions and Hobby Nights, at one of which they were highly congratulated on their work by His Excellency Field Marshal Viscount Alexander, Governor-General of Canada.

Bethel (Dunlaoghaire) M.C.—A full programme has been followed by this active Club in Eire, with meetings for Model-building, Model-building Competitions, Dinky Toys displays and Games. Castles, maritime objects and bridges have been the chief subjects for Model-building Contests. Club roll: 24. *Secretary:* L. McKay, 28, Lr. Georges Street, Dunlaoghaire, Co. Dublin.

Belvedere (Didcot) M.C.—This newly-affiliated Club has made rapid progress. Chief events during the summer have been week-end Camps held in various places. Members erected tents and followed excellent camp routine, including Cooking, with Games, Swimming and Rambles. A Rally was arranged for Oxford, where Colleges and other places of interest were visited. Club roll: 67. *Secretary:* B. Gilbert, 25, Chiltern Crescent, Earley, Reading.

Norwich M.C.—The summer programme carried out has included some enjoyable Cycle Runs and outdoor Sports such as Cricket. A visit to the local Head Office of the G.P.O. and to the Telephone Exchange proved most interesting. Club roll: 13. *Secretary:* B. Ecker, 57, Prince of Wales Road, Norwich.

Among the Model-Builders

By "Spanner"

Barrie Spink, Leeds, photographed in his Meccano costume at a Fancy Dress Carnival.

Front-Wheel Drive Mechanism

Recently I received details of an interesting front-wheel drive mechanism assembled by Mr. J. S. Makins, Bruton. This device is very neat and compact and employs an ingenious built-up flexible coupling instead of the more usual Universal Coupling. Readers will be interested to note that the mechanism can be fitted to the differential and axle unit described in the April *"M.M."*

Gerald F. Brown, Ontario, Canada, who was a prize-winner in a recent "M.M." Competition.

As seen in Fig. 1, the driving axle 1 is mounted in a Boiler End and in a Wheel Disc 2, and carries a Collar 3. Two Collars 4 are fixed on $\frac{3}{8}$" Bolts screwed into the Collar 3, and $\frac{3}{8}$" Bolts fitted to the Collars 4 form the driving member of the flexible coupling.

The stub axle is mounted in a Face Plate bolted to a $1\frac{1}{2}" \times \frac{1}{2}"$ Double Angle Strip 5, and this is attached by lock-nutted bolts to $1" \times \frac{1}{2}"$ Angle Brackets bolted to the Wheel Disc 2. The inner end of the stub axle carries a spider removed from a Swivel Bearing, and the spider is fitted with four $\frac{3}{8}$" Bolts that engage the Bolts screwed into the Collars 4.

"Penny-in-the-Slot" Mechanism

The "penny-in-the-slot" mechanism shown in Fig. 2 is based on a design sent to me by Mr. J. G. Maltby, Epsom Downs. The outstanding features of this mechanism are its extreme simplicity and the accuracy with which the release catch operates.

The framework is built up from $7\frac{1}{2}"$ Angle Girders and Strips and $5\frac{1}{2}"$ Angle Girders and Strips as shown. The rails for the sliding drawer are formed by $7\frac{1}{2}"$ Angle Girders 1 bolted to the vertical $5\frac{1}{2}"$ Angle Girders of the framework.

The drawer itself consists of two $3\frac{1}{2}" \times 2\frac{1}{2}"$ Flanged Plates bolted together, and the left-hand plate is fitted at each side with a $3\frac{1}{2}" \times \frac{1}{2}"$ Double Angle Strip. The drawer slides on the rails 1, and is guided by a 1" Reversed Angle Bracket 2 on each side. These Brackets are fixed to a $3\frac{1}{2}"$ Strip attached to the right-hand Flanged Plate, and their lower lugs slide underneath the Angle Girders 1. A $\frac{1}{2}"$ Reversed Angle Bracket 3 also is bolted to one end of the $3\frac{1}{2}"$ Strip.

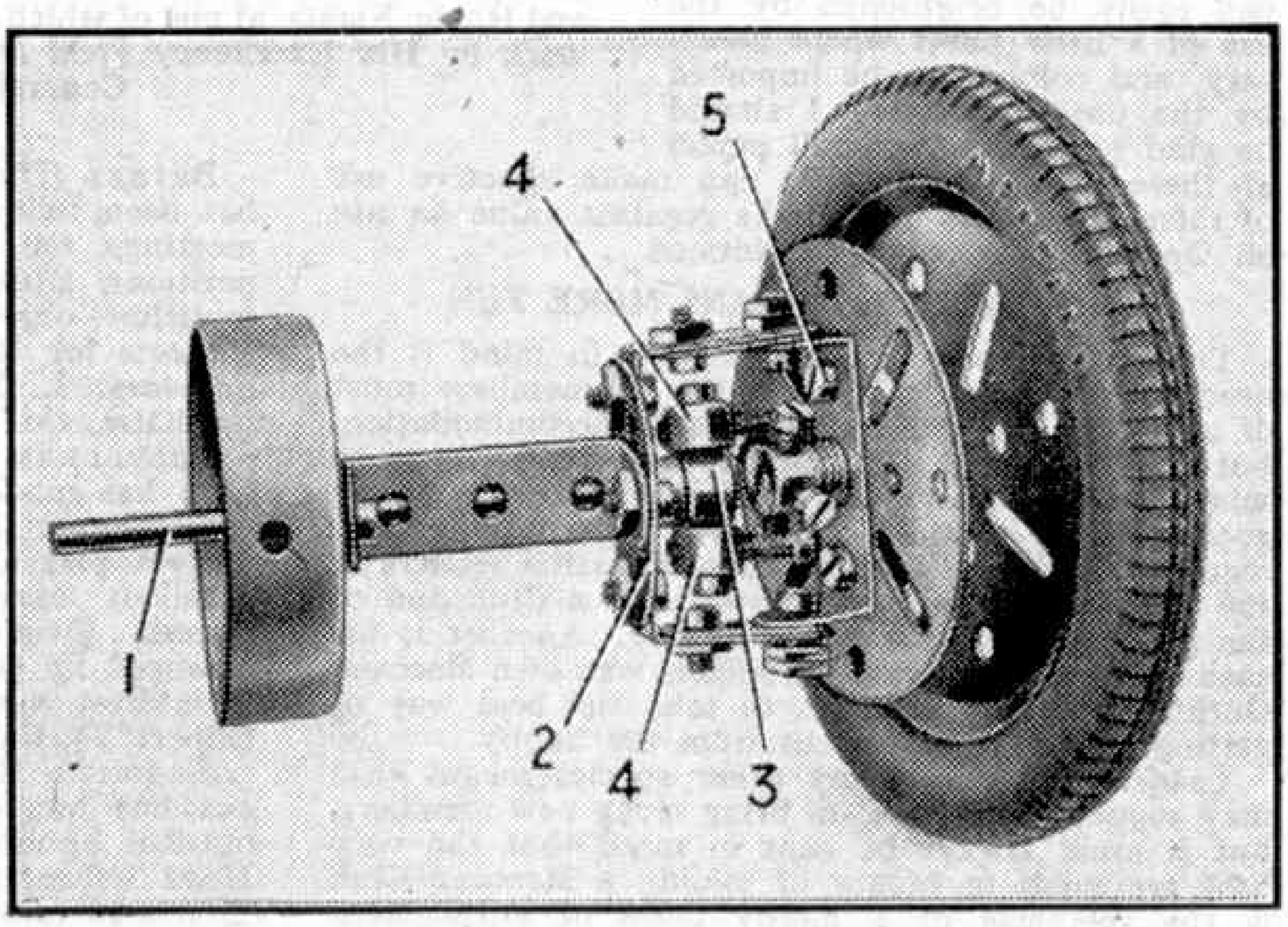


Fig. 1. A useful front wheel drive.

The release catch is formed by a 5½″ Strip 4. This is bolted to a Double Bracket at the fifth hole from the left-hand end of the Strip, so that normally it rests on the lug of the Reversed Angle Bracket 3 when the drawer is closed. The Double Bracket is pivoted on a Rod passed through the Angle Girders 1.

A slot to take a penny is formed by four 3½″ Angle Girders 5 and 6, which are bolted in pairs through their slotted holes, so that the penny slides freely between them. The Angle Girders 5 are attached by ¾″ Bolts to the front of the mechanism, and the Girders 6 are fixed by a 1″ × ½″ Angle Bracket to a 7½″ Strip of the framework.

When a penny is dropped in the slot it falls on the release catch 4 and raises its rear end clear of the Reversed Angle Bracket 3. The catch then engages an Angle Bracket 7 fixed to a 1″ × 1″ Angle Bracket bolted to the drawer. When the drawer is opened the catch is lifted further and allows the penny to drop into a suitable container.

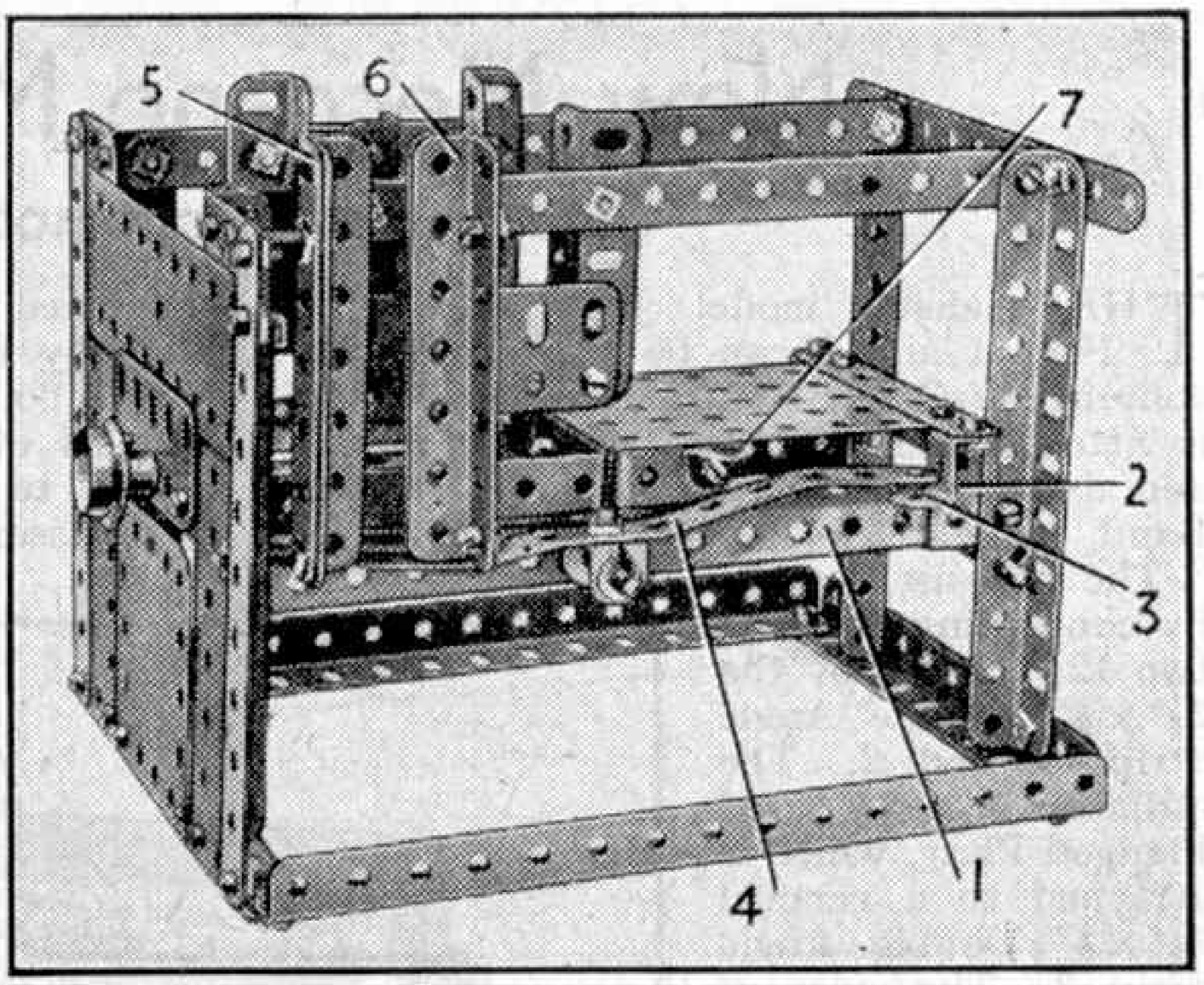


Fig. 2. A novel "penny-in-the-slot" mechanism. Its construction is fully described on this page.

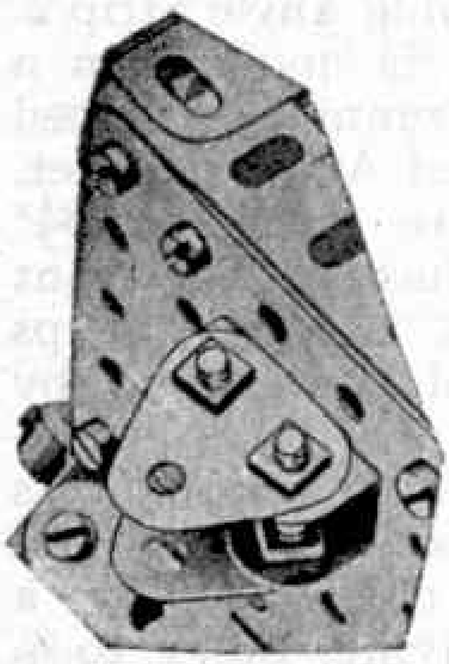


Fig. 3.

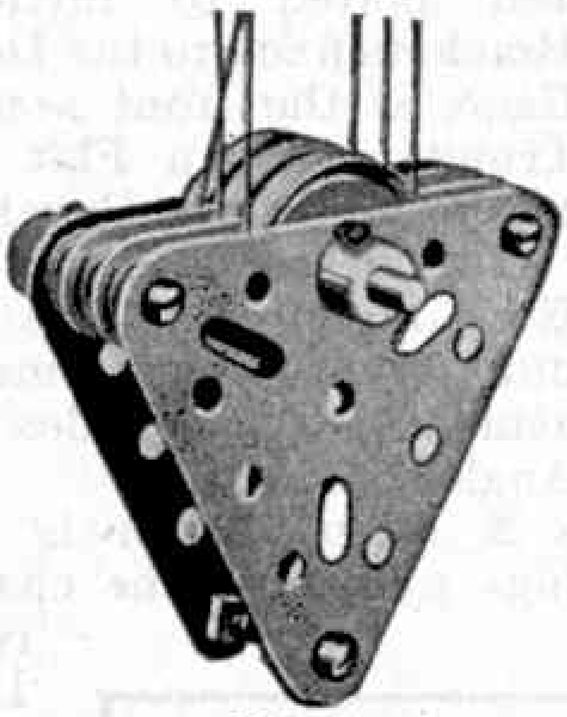


Fig. 4.

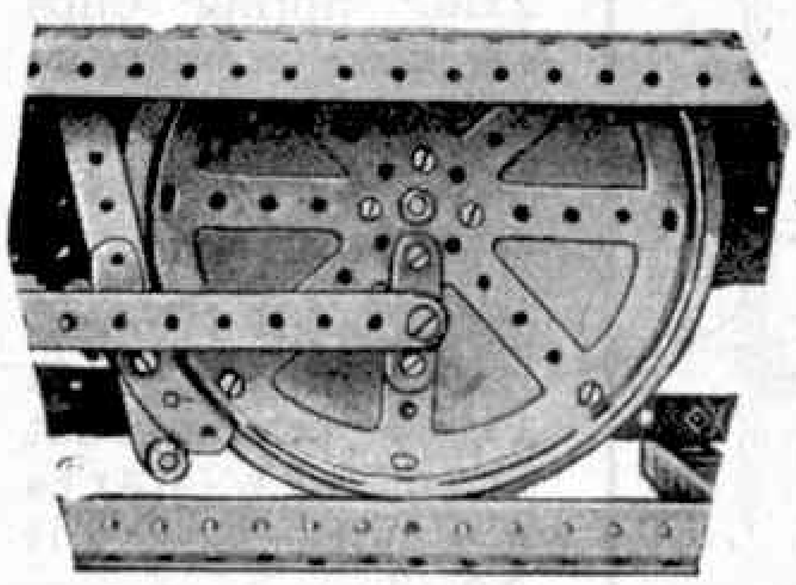


Fig. 5.

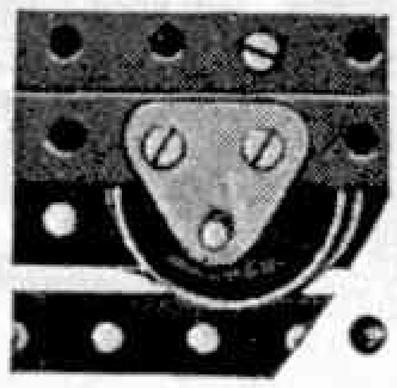


Fig. 6.

Examples of the uses of the Meccano Triangular Plates and the large Circular Plate.

HOW TO USE MECCANO PARTS

Parts Nos. 76-7; Triangular Plates

These are intended principally for use as supports for Rods, as shown in Figs. 3 and 6, but they have many other important uses. For example, in Fig. 4 two are used in the construction of a pulley block.

The 1″ Triangular Plate allows ¼″ spacing to be obtained, which is not normally possible with ordinary parts perforated at intervals of ½″. Fig. 3 shows two of these parts attached to the rear of a traction engine to receive the end of the trailer drawbar. The rear of the traction engine is 3″ wide; so that by attaching the drawbar pin direct to one of the holes in the rear Plate, it would be out of centre. By fixing two 1″ Triangular Plates as shown, and securing the pin to their protruding ends, the drawbar of the trailer is connected centrally.

Circular Plates (Parts Nos. 146 and 146a)

Circular Plates are available in two diameters, 4″ and 6″. They can be used as flywheels or turntables and to form driving wheels for large locomotives. Fig. 5 shows one of the six driving wheels of a large tank engine. It consists of a 6″ diameter Circular Plate to which a Hub Disc is bolted to form the tread.

Circular Plates can be used also to form large built-up pulleys. For this purpose a Circular Plate should be bolted to each side of a Hub Disc.

PRIZES FOR NEW MECCANO MODELS

The general model-building competition announcd in the August issue of the "*M.M.*" is still open for entries. All a competitor has to do is to build a Meccano model based entirely on his own ideas. This may be of any type, and all readers are eligible to compete no matter what their age may be.

When the model is completed the next job is to get a suitable illustration of it. This may be either a photograph or a sketch. The competitor's name and address must be written on the back of the illustration, which should be sent to "*August Model-Building Contest, Meccano Ltd., Binns Road, Liverpool 13.*"

Entries will be divided into two Sections. Section A will be for competitors living in the British Isles, and entries for Overseas competitors will be placed in Section B.

Closing Dates: Section A, 30th September; Section B, 31st December next.

New Meccano Models

Jeep—Tank Locomotive

THE realistic model Jeep shown in Figs. 1 and 2 can be built from the contents of Outfit No. 4. A *Magic* Motor is fitted under the bonnet of the model and drives the rear wheels by a Driving Band.

The chassis is made by connecting together two 12½″ Strips by the 2½″ × ½″ Double Angle Strips 1 and 2. The radiator is a 2½″ × 1½″ Flanged Plate, which is attached to a vertical 2½″ × ½″ Double Angle Strip 3. The sides of the bonnet are 5½″ × 1½″ Flexible Plates bolted to the radiator, and attached to vertical 2½″ Strips 4. The Strips 4 are fixed to Double Brackets bolted to the chassis.

The top of the bonnet is formed from two 5½″ × 2½″ Flexible Plates overlapped three holes. They are bolted to the upper lug of the Double Angle Strip 3 and attached by Angle Brackets to the Strips 4. A 5½″ Strip is fixed in position on each side of the Flexible Plates.

A 2½″ × 2½″ Flexible Plate extended on each side by a 1 11/16″ radius Curved Plate is used for the back of the model. The Plates are bolted to the rear 2½″ × ½″ Double Angle Strip, and each Curved Plate is fitted with a small radius Curved Strip and a 2½″ Strip. These Strips are connected together and to a further Curved Strip by Fishplates.

The floor of the driving compartment consists of two 4½″ × 2½″ Flexible Plates bolted to the Double Angle Strips 2. The passenger's seat is formed from two 2½″ × 2½″ and two 2½″ × 1½″ Flexible Plates connected by Obtuse Angle Brackets, and bolted to further Obtuse Angle Brackets fixed to the Double Angle Strip 2. Each of the front seats is made from a Trunnion and a Flat Trunnion attached to the floor by a Reversed Angle Bracket.

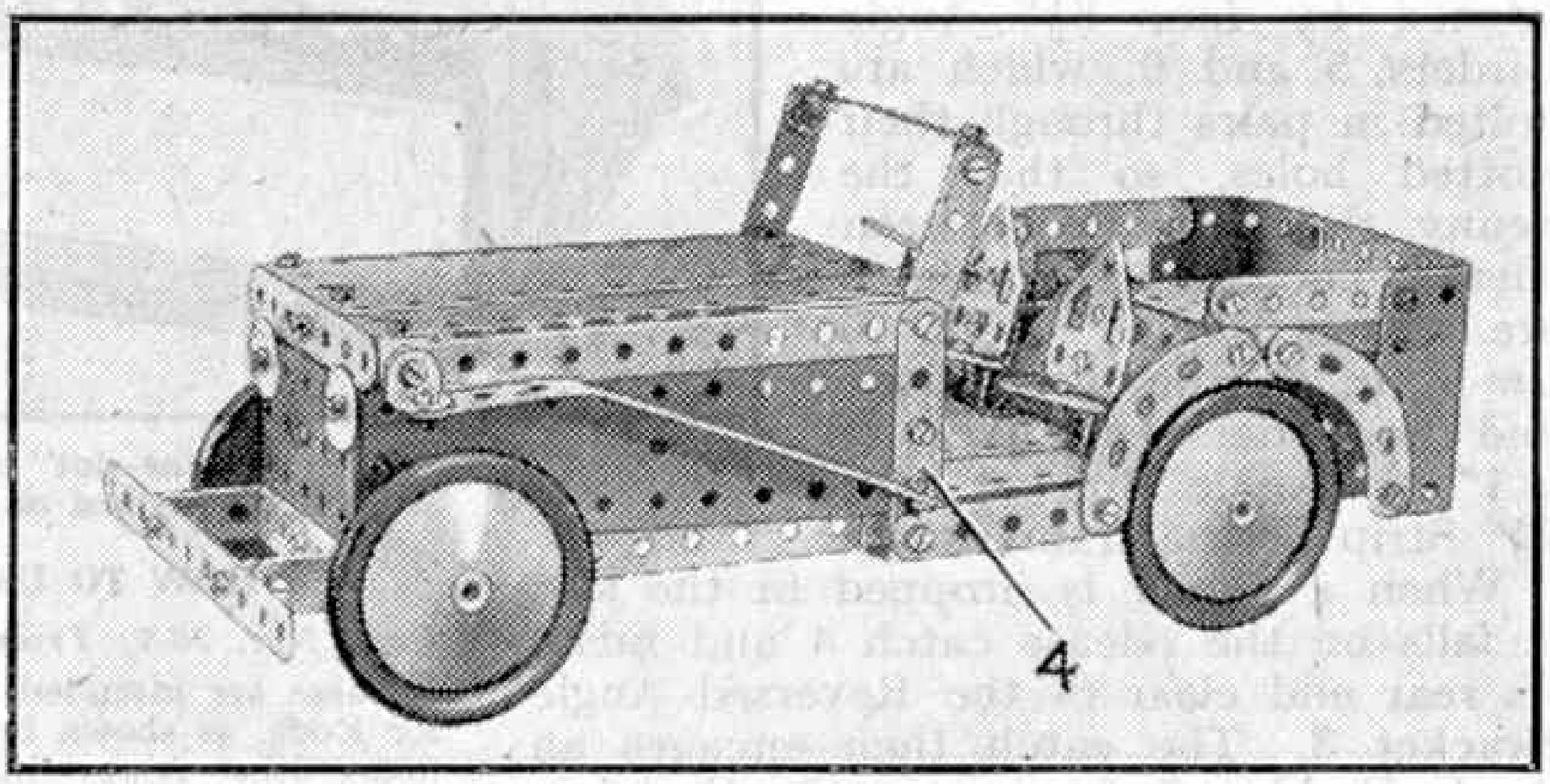


Fig. 1. A realistic jeep, built from the contents of Outfit No. 4.

The Road Wheels are fixed on 3½″ Rods mounted in the chassis. The front mudguards are formed by 5½″ Strips attached to the sides of the bonnet by Angle Brackets.

A *Magic* Motor is bolted through its lugs to one of the chassis members, and is connected by a Driving Band to a ½″ Pulley on the rear axle. Spring Clips are used to hold the axle in position.

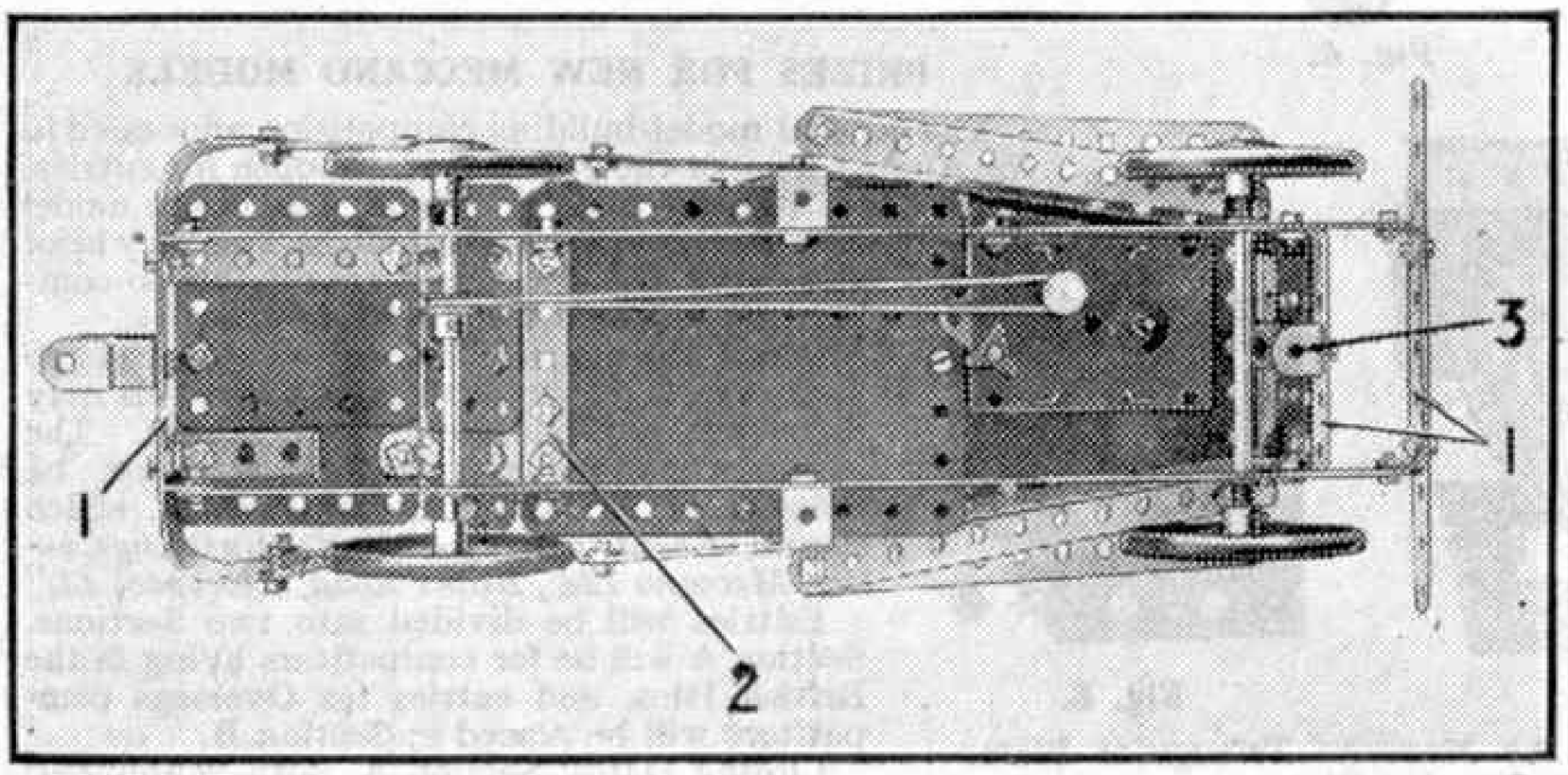


Fig. 2. The underside of the jeep, showing the position of the Magic driving Motor.

Tank Locomotive

The simple model of a 2–2–4 Tank Locomotive seen in Fig. 3 can be built from the parts contained in Outfit No. 3.

The main frames of the locomotive are 12½″ Strips bolted

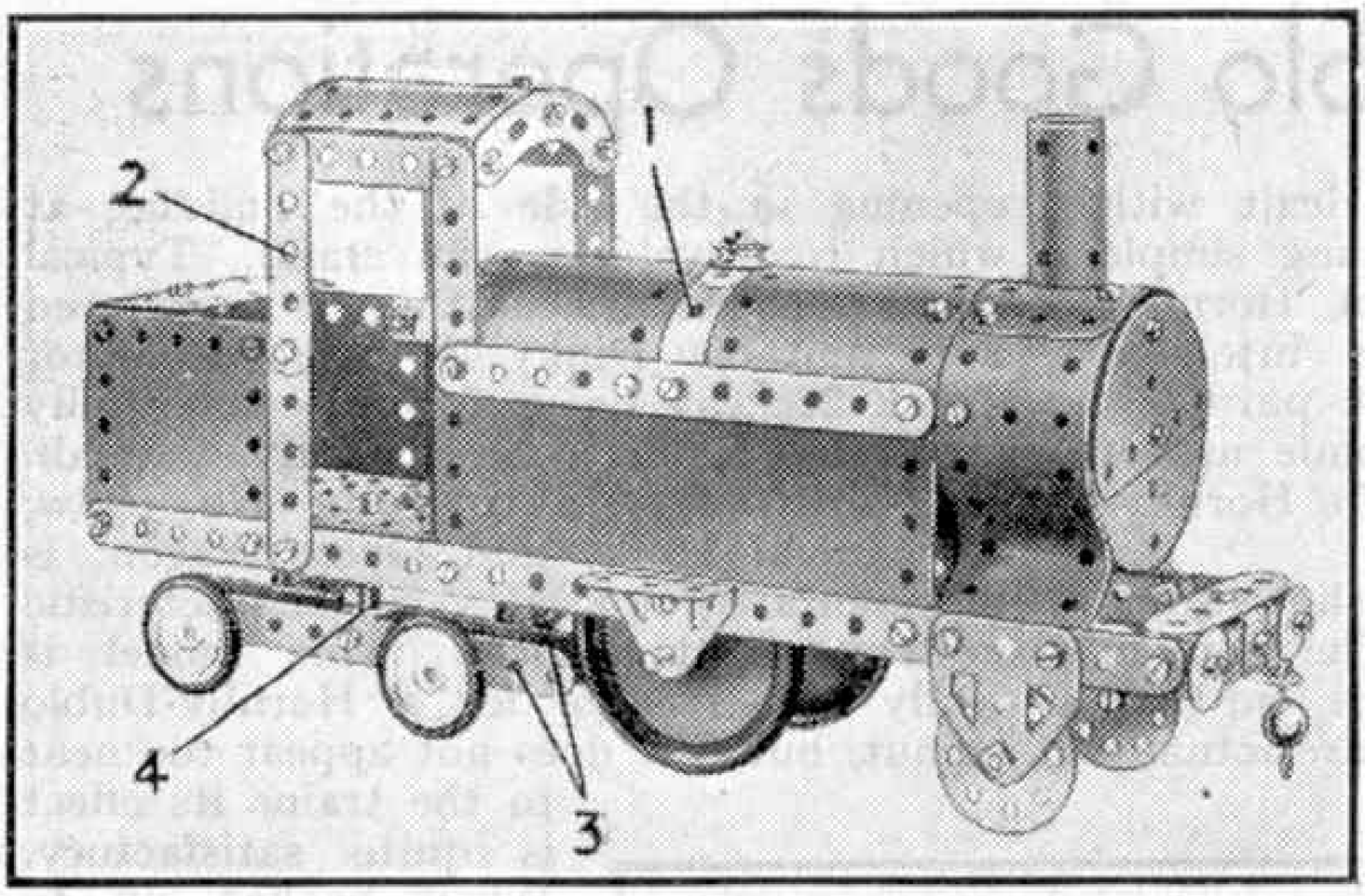


Fig. 3. All the parts required to build this simple tank locomotive are contained in Outfit No. 3.

at one end to a $5\frac{1}{2}'' \times 2\frac{1}{2}''$ Flanged Plate and joined at the other end by a $2\frac{1}{2}'' \times \frac{1}{2}''$ Double Angle Strip. The sides of the tank are represented by $5\frac{1}{2}'' \times 2\frac{1}{2}''$ Flexible Plates braced by $5\frac{1}{2}''$ Strips and bolted to the main frames.

The smoke-box is formed by two $5\frac{1}{2}'' \times 1\frac{1}{2}''$ Flexible Plates curved to shape and bolted to the main frames. The front of the smoke-box is filled in by two Semi-Circular Plates attached to the Flexible Plates by an Angle Bracket. The chimney is a U-section Curved Plate rolled into a tube and attached to the smoke-box by an Angle Bracket.

The top of the boiler is made by bolting two $4\frac{1}{2}'' \times 2\frac{1}{2}''$ Flexible Plates to the upper edges of the water tanks. The space between the $4\frac{1}{2}'' \times 2\frac{1}{2}''$ Flexible Plates is filled in by two Formed Slotted Strips 1.

The sides of the coal bunker are $2\frac{1}{2}'' \times 2\frac{1}{2}''$ Flexible Plates, and the rear is a $1\frac{11}{16}''$ radius Curved Plate straightened and attached to the sides by a $2\frac{1}{2}'' \times \frac{1}{2}''$ Double Angle Strip. The cab roof is supported on each side by a compound strip 2 formed from two $2\frac{1}{2}''$ Strips bolted together, and by two $2\frac{1}{2}''$ Strips attached to the water tanks. These Strips are connected at the top by further $2\frac{1}{2}''$ Strips, and a $1\frac{11}{16}''$ radius Curved Plate is attached by an Angle Bracket to a Curved Strip.

The rear bogie is formed by two $5\frac{1}{2}''$ Strips 3 joined by a Double Bracket. It is pivoted on a $1\frac{1}{2}''$ Rod 4 fixed in a Bush Wheel bolted to the Flanged Plate.

MODEL-BUILDING COMPETITIONS RESULTS

Successful competitors in recent "M.M." Model-Building Competitions are as follows:

"FEBRUARY" GENERAL MODEL-BUILDING CONTEST

Home Section

1st Prize, Cheque for £2/2/–: S. Reid, Aberdeen; 2nd, Cheque for £1/1/–: M. W. K. Green, Kenilworth; 3rd, Postal Order for 10/6: P. T. R. Brown, Oldbury.

Consolation Prizes of 5/–: H. F. Gibbs, Liverpool 19; D. Young, Adgestone, I.O.W.; J. Gordon, London E.4; A. L. Frost, Hampton; T. Green, Stockport; W. A. Picken, Gainsborough.

Overseas Section

1st, Cheque for £2/2/–: A. R. Tinckam, Sydney, Australia; 2nd, Cheque for £1/1/–: G. Burns, Victoria, Australia; 3rd, P.O. for 10/6: H. K. Colah, Bombay, India.

Consolation Prizes of 5/–: H. Clingham, Cape Province, South Africa; M. R. Cragg, Bloemfontein, South Africa; L. Corbeil, Montreal, Canada; N. Bousfield, Cape Province, South Africa; M. Reoch, S. Rhodesia.

"APRIL" GENERAL MODEL-BUILDING CONTEST

Home Section

1st, Cheque for £2/2/–: G. Taylor, Slough; 2nd, Cheque for £1/1/–: C. F. Penn, Bristol 6; 3rd, P.O. for 10/6: P. Stubbs, Bromsgrove.

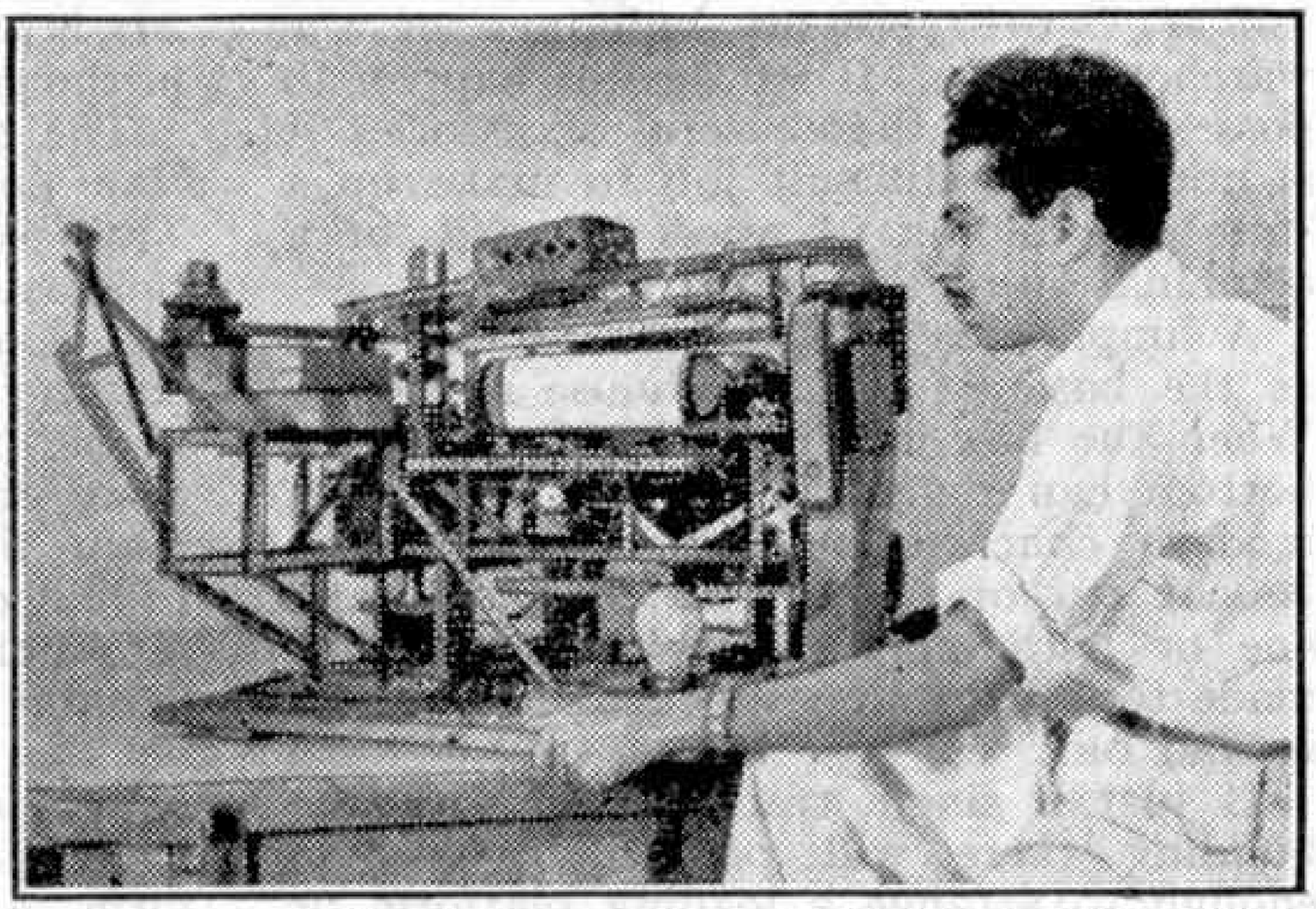
Consolation Prizes of 5/–: C. Child, Wednesbury; I. W. Smith, Birmingham 16; T. A. J. Burnett, Newcastle; D. L. Jones, Liverpool 16; H. W. G. Wyeth, Alton; B. H. Kimber, Alton; M. J. Challis, Burnley.

"SIMPLICITY" MODEL-BUILDING CONTEST

Overseas Section

1st, Cheque for £2/2/–: P. MacKay, Vancouver, B.C.; 2nd, Cheque for £1/1/–: J. Fraher, Christchurch, New Zealand; 3rd, P.O. for 10/6: H. M. Greenwood, Stoke, Nelson, New Zealand.

Consolation Prizes of 5/–: D. De Brvyn, Pretoria; C. McMaster, Cathcart, Cape Province; G. M. Reoch, S. Rhodesia; D. R. Heeramaneck, Bombay; J. McLaren, Port Stanley, Falkland Islands.

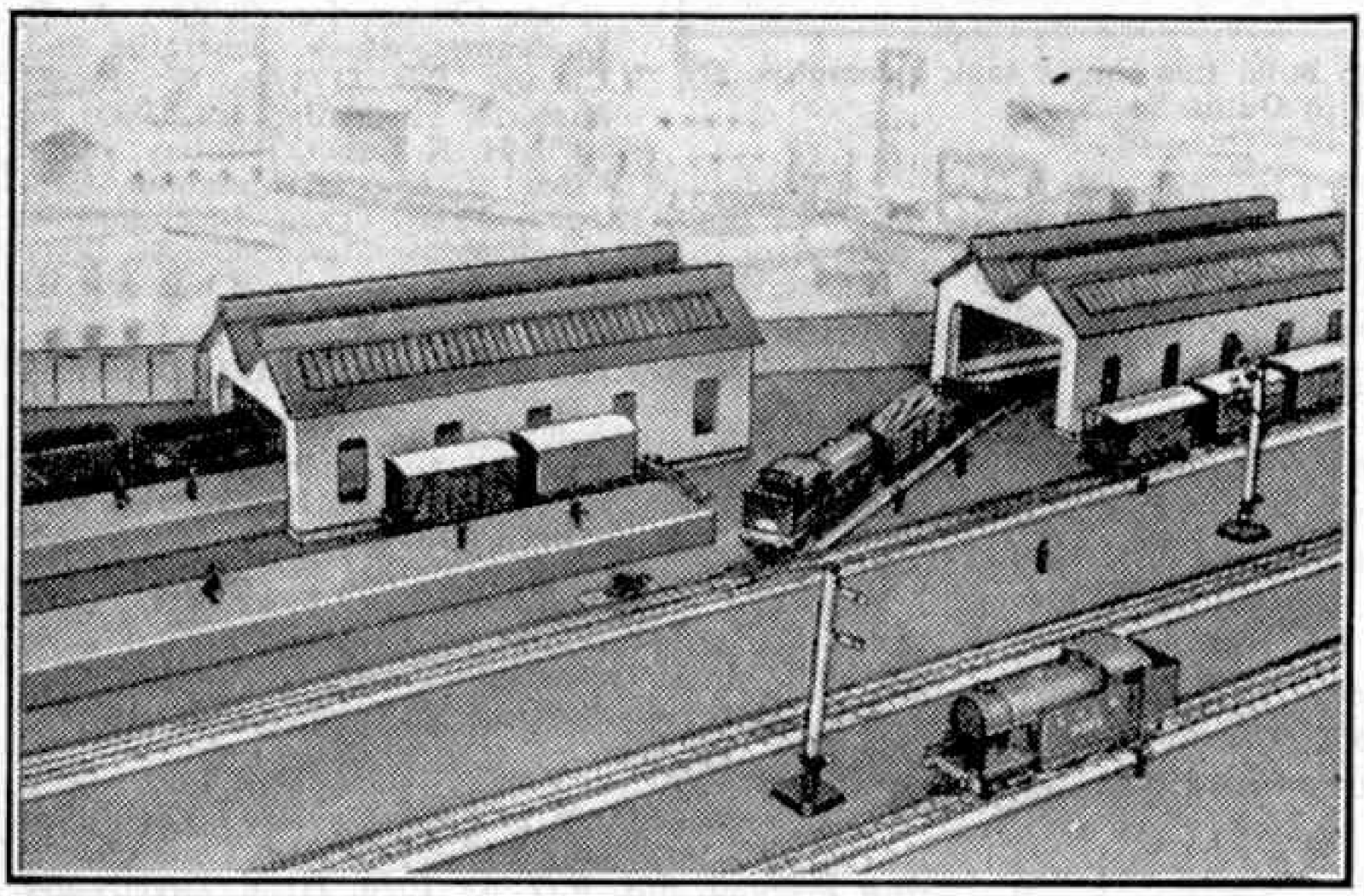


A fine model textile printing machine, and its builder, H. K. Colah, Bombay, India. The model was awarded a prize in a recent "M.M." Model-Building Competition.

Hornby-Dublo Goods Operations

IN last month's article we dealt with various schemes for arranging simple stations of different kinds on Hornby-Dublo layouts. These were intended principally for passenger traffic purposes, but similar schemes can be made use of for the "Goods Department" of a Hornby-Dublo railway.

The illustration on this page shows some developments on these lines. The scene in general represents a goods depot and yard in which the principal buildings are actually



Freight activities on a Hornby-Dublo layout. The engine in the foreground, on its way to another job, is being held at the double arm signal.

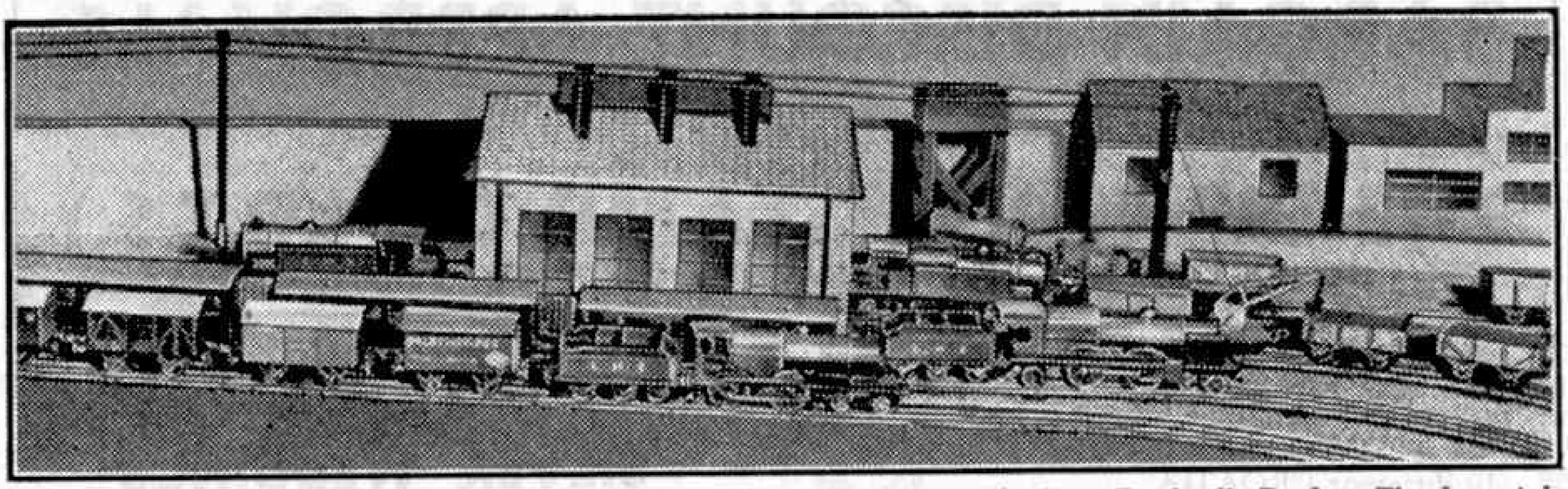
Hornby-Dublo Engine Sheds. Here they are being used, as often suggested in the "*M.M.*," to represent buildings of the warehouse type. If we do not happen to possess one of these useful accessories it is not a very difficult job to make up a suitable building of wood or card, or a combination of the two.

A simple idea is to use a cardboard box as the basis of our warehouse or depot. When the box is turned upside down its bottom can represent the flat roof of a modern concrete building; windows can be cut out or painted on the sides, and one or both ends can have an opening made to allow rolling stock to be shunted in and out.

If just a single track passes into the building there will probably be room enough to arrange a loading platform or "bank" inside. When this is done an interesting arrangement is to have an opening in the side of the building at which road vehicles can stand. Typical goods depot scenes can thus be reproduced with suitable Dinky Toys. The Motor Truck 22c can be used quite successfully for Dublo traffic as it is relatively small. In addition Dinky Toys No. 33w, Mechanical Horse and Open Wagon, is representative of a very characteristic railway-owned vehicle. This model is really rather large for a Hornby-Dublo layout, but if it does not appear too near to the trains its effect is quite satisfactory. When backed up to the loading platform its appearance is so typical of the real thing that its slightly over-scale proportions will not be noticed.

The motor vehicles just described are of types invariably associated with freight of the lighter kind, or goods that are packed in cases and so on and handled at an actual goods shed. "Rough" or heavy loads, such as coal, building materials, etc., are usually dealt with in the open goods yard. For this type of work a recent addition to the Dinky Toys range, Forward Control Lorry No. 24r, is just the thing, and one or two of them in the goods yard look most effective.

The standard Open Wagon and Goods Van included in Hornby-Dublo Goods Train Sets are typical of the most common railway vehicles to be seen either in the big goods yard or depot or the small country goods shed. They can be worked in and out of the depot or warehouse after more or less lengthy journeys round the main line. The Open Wagons can be provided with loads of various kinds, and although the Vans cannot be loaded, suitable boxes and bales can be stacked on the goods platform as if they were ready to be placed inside them. Actual loads for Hornby-Dublo Goods Trains form a special subject in themselves and we hope to deal with this in a subsequent article.



The engine shed and other buildings on the layout of A. R. Casebrook, New Bradwell, Bucks. The layout is electric, and the engines and rolling stock are Hornby pre-war models.

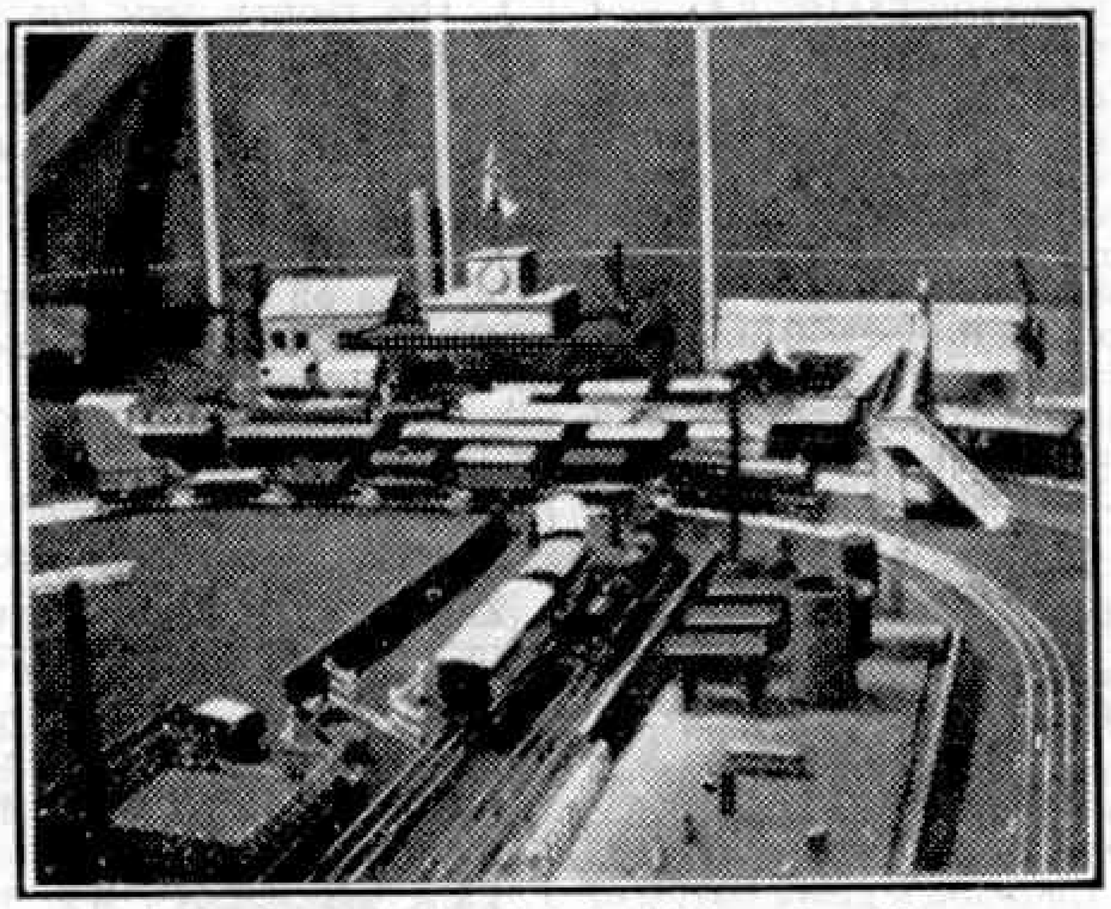
A Notable Hornby Electric Railway

IN the "*M.M.*" for January 1945 there appeared a description of the Hornby layout of our reader A. R. Casebrook of New Bradwell, Bucks. Since then the system has been successfully redesigned and a description of the layout, as it is now, will no doubt be of interest.

The railway now occupies a space of 20 ft. × 18 ft. and it consists of four main oval tracks, with sidings and loop lines led off each main line. These four main lines constitute two up and down lines for fast and slow traffic respectively. The inner track has four sidings and these serve the goods depot, which has a cattle loading platform and a petrol and oil depot.

The layout is electrically operated from the mains supply, through Meccano 20-volt Transformers and Circuit Breakers, and is controlled throughout from a central control panel. A series of coloured indicator lights is fitted in connection with the circuit breakers. If the latter are tripped, these lights show to the operator which line is involved, so that the fault can be cleared with the minimum of delay. The track is divided into 20 sections that can be controlled separately; trains can be stopped in any one section while independent movements are being carried out with other traffic on adjoining sections. When any one section is occupied this is shown on the control panel by a coloured light on which is marked the name of the section concerned.

Colour-light signals are used and these are of the owner's construction and design. Some signals, remote from the operator, are fitted with light repeaters on the control panel, so that failure of a signal light is indicated by failure of its repeater. Operation of signals is arranged so that it is possible to control both the current and the signals to the track in one operation.



Part of the layout showing freight and cattle accommodation in the foreground, and a passenger station in the rear.

At present four complete trains are running to a timetable. There is the "*Royal Scot*," hauled by the well-known Hornby No. E320 "Royal Scot," a goods train in charge of Hornby E220 Special Standard Compound, and two goods trains each hauled by the Hornby Special Tank. All the above are in L.M.S. colours and each is made up in standard formation.

All buildings and stations are home-built and are illuminated, while goods yards are floodlit. All lights can be dimmed or switched off at a moment's notice. Scenery is now being prepared to place round the walls to give the effect of distance.

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For other Stamp Advertisements see also pages 322 and xi.

Stamp Collecting

Waterfalls

By F. Riley, B.Sc.

ONE of the new stamps illustrated in "*Stamp Gossip*" of the January 1948 issue shows a waterfall in the Dominican Republic. This stamp is one of 10 of the same design that were issued in 1947, each in two colours, the waterfall itself being light blue in tint throughout the series and the colour of the frame varying from green to scarlet, yellow and brown. The stamp is really a handsome production and its appearance arouses interest in a scheme that has often been suggested, the formation of a collection of waterfall stamps. A surprising number of these are to be found when the pages of the catalogues are turned over, and there are certainly sufficient to make an attractive collection, especially if this is well written up.

When considering a waterfall stamp collection one naturally thinks first of famous waterfalls such as Niagara, the Victoria Falls of the Zambesi River, and the Kaieteur Falls in British Guiana. The best known of famous falls, that at Niagara, cannot be given real prominence in a stamp waterfall collection. Only one Canadian stamp shows it, the 20c. value of the 1935 issue,

and the only United States stamp on which it appears as the chief feature is one of value 25c. that appeared in 1922, as part of a long series that included representations of North American scenes. A United States stamp of 1901 illustrates the bridge below the Falls, and what appears to be a representation of the Falls shows through the arch.

The Victoria Falls of the Zambesi have achieved much greater prominence in the stamp world. They first figured on a set of six stamps issued in 1905 to commemorate the visit of the British Association to Rhodesia, and the opening of the Victoria Falls Bridge across the Zambesi. Practically the same view appears on the 2d. and 3d. values of the Southern Rhodesia issue of 1931. In 1932 there was another set of two stamps illustrating the Falls, which reappeared on the four stamps of the Silver Jubilee issue, with a giraffe, an elephant and a lion posed in front of them, and again on the Coronation Issue, also in four values, with the railway bridge included in the scene.

British Guiana is now famous as a country of great waterfalls. The first of these to be discovered were the Kaieteur Falls, and these appeared first on the Colony's stamps in 1898, in a series commemorating the jubilee of Queen Victoria in the previous year; the stamps were actually dated 1897. Half of the six values showed

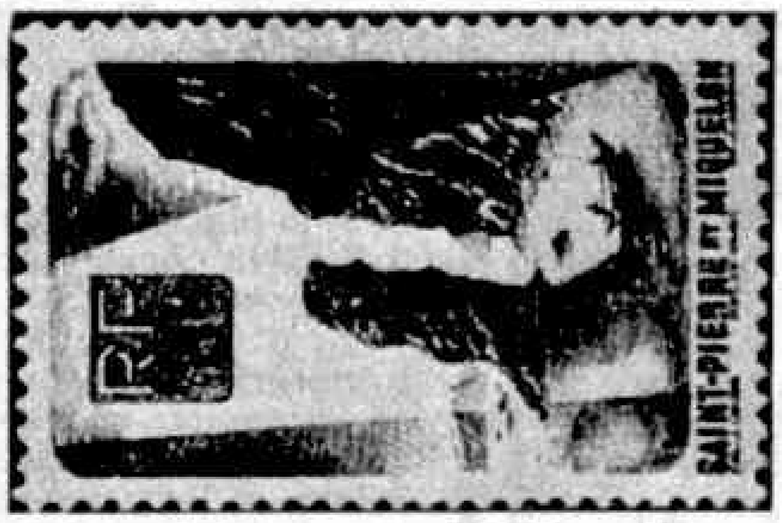
the Falls. These were two 2c. stamps, one in brown and indigo and the other in brown and blue, and a 10c. value, in blue-black and orange-red. The next appearance was on the 4c. value of an issue of 1931 to celebrate the centenary of the union of counties making up the present colony of British Guiana; the design was repeated on two stamps of a set of three years later and also in the pictorial issue of 1938.

Looking further round the British Empire we find an interesting waterfall stamp from Jamaica. This illustrates the Llandovery Falls and appeared in two values in 1900. Still in the West Indies, we have the Ventine Falls of St. Lucia on the 1½d. and 3d. values of the pictorial issue of 1936; these falls are in a volcanic district and the water is hot. South West Africa has the beautiful Okuwahaken Falls on the £1 value of the 1931 issue, a rather expensive stamp, but a good one, in lake and blue-green. Then far away in the Pacific a stamp from the Samoan pictorial set of 1935 illustrates the Falefa Falls; this was the highest value of the issue, which is the one including representations of Vailima, the island home of R. L. Stevenson, and of the author's tomb. Tasmania also has contributions for the collection; in an issue of 1899 there are stamps showing the Russell and Dilstone Falls, which also appear on two stamps of the 1905 issue, while in addition the Dilstone Falls are illustrated on a 6d. stamp that appeared in 1911.

There is a wide range of waterfall stamps from other countries. The United States Niagara stamps have already been mentioned, but the best representation of an American fall, the Vernal Falls of the Yosemite Valley, appears on a Philippine Islands stamp of 1932. A curious point about this stamp is that on it the cataract is wrongly described as the Paysanjan Falls, which presumably are in the Philippine Islands.

Switzerland provides interesting examples, although the number is fewer than might have been expected; the Staubbach Falls and the famous Rhine Falls near Schaffhausen appear on stamps of the issue of 1934, and are repeated on similar values in the 1936 issue. Among the stamps of Iceland the Gullfoss was given an entire issue of six values to itself in 1931 and four years later came another example, the 10a. value of 1935 featuring the Dynjausdi Falls.

The list can readily be extended with waterfall stamps from the French Cameroons and the Belgian Congo in Africa, and from Brazil, Paraguay and Salvador in South America. A further stamp that could well be included comes from French Guiana. This does not show an actual fall in the full sense of the word, but natives in a canoe shooting rapids. It certainly makes an extensive addition to the collection, for the design was repeated on 18 stamps in a long issue of 1929–40, each in two colours. The lowest value has two representatives, yellow-green and green and in chocolate and yellow-green respectively, while the 1 fr. value actually provides three.



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MINT PEACE SETS. Aden 9d., Ascension 1/-, Australia 1/2, Br. Solomon Is. 7d., Burma 1/3, Cayman Is. 9d., Ceylon 8d., Falkland Is. 9d., Falkland Is. Dep. 1/-, Fiji 10d., Gilbert & Ellice Is. 7d., India 2/9, Mauritius 9d., N. Zealand 5/-, N.Z. Dep. (3) 4/9, Nyasaland 6d., Pitcairn Is. 10d., St. Helena 1/-, Seychelles 1/2, Trinidad 9d.

GENERAL OFFERS. ROYAL VISIT ISSUES FOR BASUTOLAND, Bechuanaland, Swaziland, S.A., S.W.A. and S. Rhodesia 10/-; Brunei 1947, 1, 2, 3, 5, 6, 8, 10, 15, 25, 30, 50c. 4/4 $1 2/9; 1945 Duke of Gloucester 1/6; 1946 Mitchell 1/9; Austria Vienna Fair (8) 1/-; Ceylon Constitutional Set 1/2; Mauritius P.O. Cent. Set 2/6.

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COMPLETE ANNIVERSARY SET FREE!

As a special attraction during the months of September and October we offer quite free to all new customers for our special "½d. Upwards" approval selections a complete set of the Chinese 1947 Post Office Anniversary Commemoratives. A fascinating set of 5 stamps showing Ships, Trains, Aeroplanes, and various aspects of postal work. Write to-day enclosing 3½d. in stamps to cover postage and price list to:—

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50 New Clients wanted this month 50
Will you be one? Postage please.
H. Jackson, 20. Branch St., South Bank, Middlesbrough

FREE TO ALL COLLECTORS

(Postage 2½d.)

NEW ISSUE FOR NORFOLK ISLAND

G. P. KEEF, Willingdon, Eastbourne

EUROPE "SEVENOAKS SPECIAL" PACKETS
All Different — Postage extra

	1/-	2/6	5/-		1/-	2/6	5/-
Austria	30	100	200	Hungary	30	70	125
Belgium	45	75	150	Italy	40	60	100
Bulgaria	25	40	80	Jugo Slavia	30	50	90
Cz. Slovakia	30	50	100	Latvia	12	20	35
Danzig	12	30	50	Lithuania	12	20	35
Denmark	30	50	75	Norway	25	40	60
Eire	18	30	38	Poland	30	65	100
Estonia	15	25	35	Portugal	30	50	80
Finland	20	40	60	Roumania	25	40	90
France	35	60	100	Russia	20	40	70
Germany	50	100	150	Spain	30	50	75
Gt. Britain	30	50	75	Sweden	30	50	75
Greece	25	50	90	Switzerland	25	50	75
Holland	30	50	75	Turkey	25	40	75

Owing to stock difficulties,
please order alternatives.

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STAMP APPROVAL APPLICANTS

Receive 20 Stamps including the following islands, Samoa, Tonga, Pitcairn, Gilbert and Solomon islands.

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FREE ROYAL VISIT SET Southern Rhodesia **FREE**

This lovely set featuring the King and Queen and two Princesses. FREE to all who send 2½d. postage and ask to see "WORTH WHILE" approval sheets. No stamps sent abroad.

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For other Stamp Advertisements see also pages 320 and xi.

Stamp Gossip

and Notes on New Issues

By F. E. Metcalfe

THIS month we are kicking off by illustrating one of the most insignificant commemorative stamps that have ever been issued by any country in the British Commonwealth of Nations; pity that when the authorities decided to honour a great man, they did not see to it that at any rate the stamp was worthy of the object. It is true that not many British people in Great Britain ever heard of the subject of the stamp, but the man in question, William James Farrar, did a grand job in particular for Australia, and in general for our own country. His pioneer research work in wheat breeding is still bearing fruit and but for him we should probably be getting less bread than ever. Born as long ago as 1845, he graduated as a surveyor at Cambridge, and he more than anyone else helped to put Australia right in the forefront as a producer of that precious cereal wheat.

Leaving this very ordinary stamp, we can illustrate one of a fine set which has been issued by Gold Coast. It is hard to decide on which stamp to show, for all values from ½d. to 10/– are of interest, but probably the 2d. stamp showing the talking drums will be preferred. We have all read of the bush telegraph, but unlike so many other romantic stories which come out of Africa, this means of passing on news is a very real thing. A form of Morse code is used and understood by the drummers and it is simply amazing how news can travel by this means. The 1/– stamp is very interesting too, showing as it does a native breaking up cocoa pods. The Gold Coast produces almost half the world's supply, but at the present moment there is great anxiety regarding future crops of cocoa beans, for the trees which bear them are suffering from a severe pest, and several million of them have been destroyed.

Altogether, collectors will find this set a fine one indeed, and one which will do much to rekindle interest for British Colonial stamps, after the blow they have had through the emission of all the high values for the commemoration of the Royal Silver Wedding. It is months since these latter stamps were first mentioned, but collectors all over the world (there can hardly be a country where our colonial stamps are not popular, or were popular) are still grumbling about them, though if no more are forthcoming, no doubt they will get over it.

Our third illustration this month shows one stamp of a set of four issued by Pakistan recently, to commemorate its independence. The stamps are line engraved and printed by Messrs. De La Rue, and dealers report good sales for them. It would appear that British collectors have taken Pakistan to their hearts, for the stamps of this country are already quite popular; but great care should be exercised regarding the overprints of the Indian stamps. There are a number about which are pure fakes, and the fact that they are used on piece is no guarantee; as a matter of fact these are more likely to be wrong than the mint ones. Some of these stamps with forged overprints are very crudely done, and recently the writer of these notes saw a used block of stamps where part of the overprint was actually on the piece of paper to which the stamps were stuck. In any event these hand-applied "overprints" are hardly likely to be catalogued, so big prices should not be paid. Of course, the stamps with the overprints applied at Nazik, and offered by reputable dealers, are all right.

The United States still keeps at it, and the list of forthcoming commemorative stamps grows longer every hour. Apparently politics is now entering into it, for some time ago President Truman vetoed a stamp which had been proposed to commemorate the Swedes, but in the end he had to give way, for the issue boiled down to votes or stamps; votes won. A stamp in honour of the poultry industry has been proposed; but alas poor Mother Hubbard seems to be going unsung. She cannot have any votes to influence.

For our fourth illustration we are showing one of the set of three issued for use in the Tokelau Islands, that far-away group which is under the guardianship of New Zealand. The stamps are quite attractive and as is obvious, were designed by the same artist who designed the Otago and "Victory" sets of New Zealand. There are two points of view as to the artistic (or otherwise) merits of these stamps, but nobody can deny their brightness, which at any rate is a pleasant change from the sombre colours of the stamps of their neighbour—Australia. Sombre is putting it very politely.

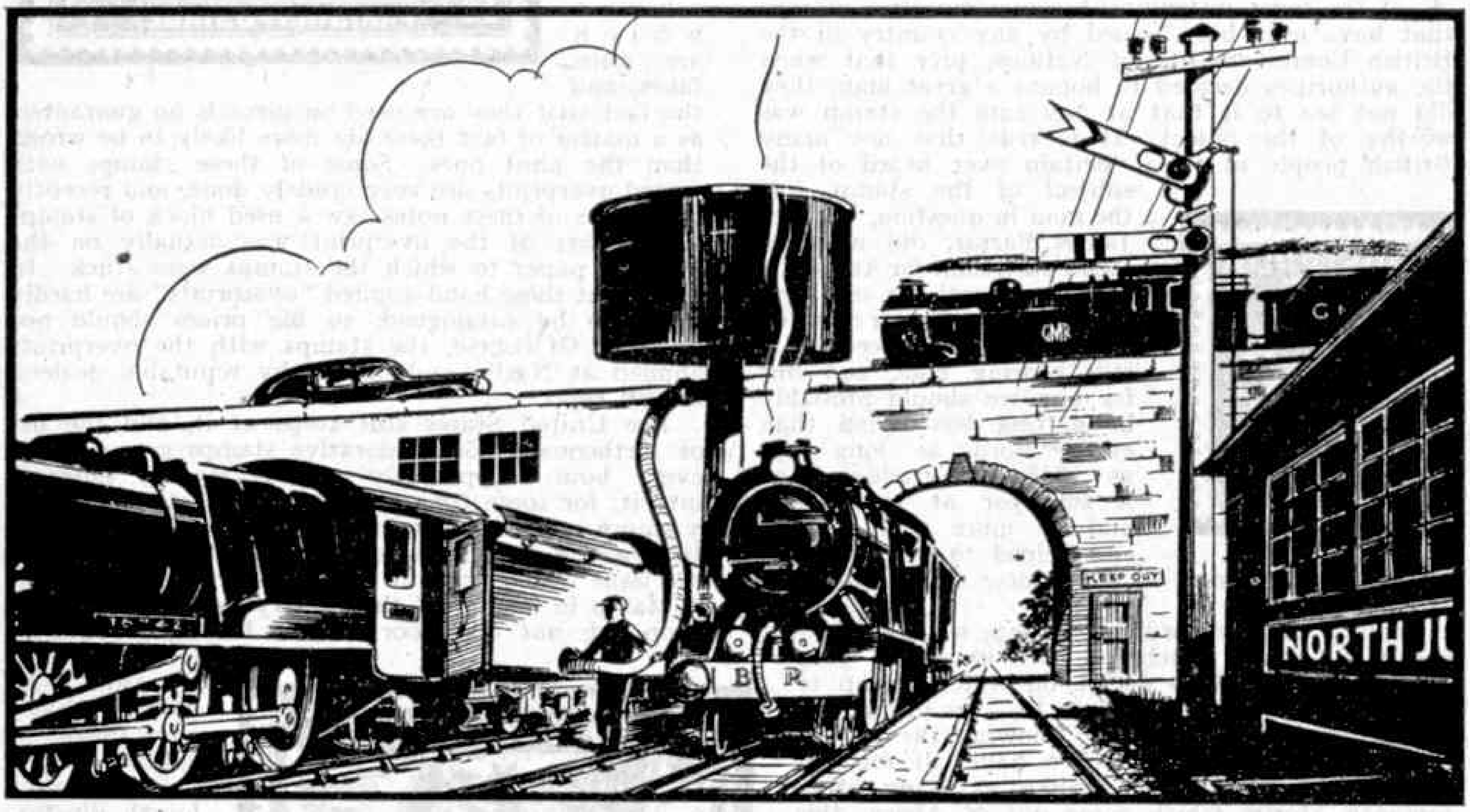
One of the most popular countries with stamp collectors is Newfoundland, and as the status of this country is changing, no doubt this will be reflected in its stamps. So the present set should be obtained while it is still current, for it will cost a good deal more later on once the change has actually taken place; but don't overlook that the set in question can be obtained in two perforations. The one at present in use is Perf. 12½, and stamps of this perforation come into the purview of a K.G. VI collection, which makes them all the more desirable, for there are probably ten collectors of stamps of the present reign to every one who takes earlier issues.

The tip for this month refers to our own stamps. Collect all nice copies you can get of the "Olympic Games" set, used. They are going to take a lot of finding later on. Mint will remain common for a long time, but there is a definitive shortage already of "Olympic Games" stamps in used condition, so now is the time to look around, but it is important to see that any copies of those stamps that are collected are lightly cancelled and undamaged. Poor copies are not worth keeping.

Competitions! Open To All Readers

Prize-winning entries in "M.M." competitions become the property of Meccano Ltd. Unsuccessful entries in photographic, drawing and similar contests will be returned if suitable stamped addressed envelopes or wrappers are enclosed with them.

What is Wrong Here?



Here is an imposing railway picture, which will impress readers immediately they see it. Something else will begin to impress itself upon them very soon, however, for they will find first one mistake and then another, and in the end they will realise that the drawing is full of them. Finding these will be great fun for all readers.

This gives us the basis for our competition. Entrants are asked to trace all the errors in the drawing, and to send their lists, when they think they are complete, to *"September Errors Contest, Meccano Magazine, Binns Road, Liverpool 13."*

The picture must not be cut out of the page to be used as part of the entry.

As usual, there will be separate sections for Home and Overseas readers, and in each of these there will be prizes of 21/–, 15/– and 10/6 respectively for the best entries in order of merit. If there is a tie for any prize the judges will base their decisions on the novelty and neatness of the entries concerned. Closing dates: Home Section, 31st October; Overseas Section, 30th April 1949.

Ships in Camouflage

Practically all readers of the *"M.M."* will be familiar with the names of a large range of British Merchant ships, but I wonder if they will recognise any of these in the list given below. In this there are the names of 12 British ships, all well-known but here disguised. In each case the letters of the name are correct, but they are in the wrong order, and entrants must disentangle them and give the exact names.

Here is the list. 1, Neuqe Bazelithe; 2, Dankyve; 3, Sherbydire; 4, Uwine Stermadam; 5, Rutiassa; 6, Desna; 7, Lindhagh Fitcheina; 8, Ornifanca; 9, Devalberel; 10, Grantatia; 11, Shorewercresit; 12, Lanc Marenoc.

When all the names have been discovered a list should be made in the numbered order, and this should be despatched to *"October Ships Contest, Meccano Magazine, Binns Road, Liverpool 13."* There will be two sections in the Contest, as usual, for Home and Overseas readers respectively, and in each of these prizes of 21/–, 15/– and 10/6 will be awarded to the best solutions, with Consolation Prizes for other good efforts. If necessary the judges will take the novelty and neatness of the entries themselves into consideration. Closing dates: Home Section, 31st October; Overseas Section, 30th April 1949.

September Photographic Contest

Winter games are not so popular with photographers as those of the summer season, for the simple reason that light conditions are not so good in winter. Football has already made a start with the 1948–9 programme, however, and Hockey will come into the picture this month, during which there should be ample opportunity for securing well exposed pictures. For the 9th in our 1948 photographic contests, therefore, readers are asked to submit pictures of games that are played at this season of the year. The pictures may cover players, officials or spectators, but the games connection should be clear.

There are only two conditions, but these must be observed by all entrants. The first is that the photograph must have been taken by the competitor, and the second that on the back of the print must be stated exactly what the photograph represents.

Entries will be divided into two sections, A for readers aged 16 and over, and B for those under 16. They should be addressed *"September Photographic Contest, Meccano Magazine, Binns Road, Liverpool 13."* There will be separate sections for Overseas readers, and in each section prizes of 21/–, 15/– and 10/6 will be awarded. Closing dates: Home Section, 30th September; Overseas Section, 31st March 1949.

Competition Results and Solutions

HOME

MARCH 1948 HIDDEN NAMES CONTEST

1st Prize: R. Y. Pomfret, Blackburn. 2nd Prize: G. E. Hamilton, Woodbridge. 3rd Prize: B. E. Timmins, Hereford. Consolation Prizes: R. Bedford, Darlington; M. Warburton, London E.4; R. G. Hilton, Bolton; R. J. Williams, Liverpool 5.

MARCH 1948 PHOTOGRAPHIC CONTEST

1st Prize, Section A: R. R. Bushell, Hoddesdon; Section B: M. P. Wray, Gainsborough. 2nd Prize, Section A: H. W. Dean, Purley; Section B: K. Walker, Edinburgh 11. 3rd Prize, Section A: E. Davies, London S.E.9; Section B: P. Taylor, Sydden. Consolation Prizes, Section A: R. Wrigley, Clitheroe; N. V. Salt, Newcastle; J. Allen, Eastleigh; Section B: J. Wills, Formby.

OVERSEAS

SEPTEMBER 1947 LOCOMOTIVE PARTS CONTEST

1st Prize: S. F. Hughes, San Francisco, U.S.A. 2nd Prize: P. J. Butler, Bombay, India. 3rd Prize: K. T. Wright, Amsterdam, Holland. Consolation Prizes: T. Harrison, New York, U.S.A.; K. T. Wales, Melbourne, Australia.

SEPTEMBER 1947 STAMP BARGAIN CONTEST

1st Prize: P. S. E. Brown, Vancouver, Canada. 2nd Prize: N. Bousfield, Stutterheim, S. Africa. 3rd Prize: A. F. England, Cape Town, S. Africa. Consolation Prizes: M. Reoch, P.O. Gadzema, S. Rhodesia; Miss E. V. Gnanadurai, Trichinopoly, India.

SEPTEMBER 1947 PHOTOGRAPHIC CONTEST

1st Prize, Section A: N. Brown, Durban, S. Africa; Section B: B. Costigan, Brisbane, Australia. 2nd Prize, Section A: Miss N. P. Milne, Hastings, N.Z.; Section B: J. Haldane, Wellington E.1, N.Z. 3rd Prize, Section A: T. Burnley, Pretoria, S. Africa; Section B: P. Youngman, York, W. Australia. Consolation Prizes: E. J. Lloyd, Empangeni, S. Africa; J. W. M. Chicken, Muirzenburg, S. Africa.

OCTOBER 1947 CROSSWORD PUZZLE

1st Prize: A. Smith, Kimberley, S. Africa. 2nd Prize: J. C. Wheeler, E. London, S. Africa. 3rd Prize: D. McKenzie, Palmerston North, N.Z. Consolation Prizes: A. M. Cave, Gisborne, N.Z.; G. F. Brown, Ontario, Canada.

OCTOBER 1947 RAILWAY ERRORS CONTEST

1st Prize: B. Biswas, Calcutta 6. 2nd Prize: A. Mathew, Cape Town, S. Africa. 3rd Prize: D. J. White, Christchurch N.1, N.Z. Consolation Prize: J. A. Gomes, Bombay 20, India.

OCTOBER 1947 PHOTOGRAPHIC CONTEST

1st Prize, Section A: K. J. Milne, Hawke's Bay, N.Z.; Section B: F. Drop, Copenhagen, Denmark. 2nd Prize, Section A: J. Bousfield, Stutterheim, S. Africa. Section B: M. Bar, Hong Kong. 3rd Prize, Section A: S. Rosebud, Invercargill, N.Z.; Section B: Jerome Ystel, Paris, France. Consolation Prizes: R. R. Yrnjas, Johannesburg, S. Africa; L. M. Maton, Cape Town, S. Africa.

SOLUTIONS

JULY 1947 AIR LINES CONTEST

1. British Overseas Airways. 2. British European Airways. 3. Qantas Empire Airways. 4. South African Airways. 5. Aer Lingus Teoranta. 6. United Air Lines. 7. Pan American Airways. 8. Eastern Air Lines. 9. Pan American World Airways. 10. Royal Dutch Air Lines. 11. American Airlines. 12. Trans-Canada Air Lines.

AUGUST 1947 QUIZ

1. Cheshire Lines Railway; Canadian Pacific Railway; Pennsylvania Railroad; New York Central; Midland and Great Northern; Mersey Railway. 2. Trap Points are switches to derail vehicles running away on the right line; usually placed at the exit of sidings. 3. Yellow ground signals show yellow for "caution" and green for "line clear." They are usually situated in sidings adjacent to a main line and when at "caution" trains can pass for shunting purposes. The signal however must show "clear" before a train can pass to join the main line. 4. An engine hauling a goods brake van. 5. Liverpool—Southport line; near Liverpool. 6. Old wagons with wooden block buffers. 7. An engine without a fire and no steam. 8. In America during the Civil War, 1863. 9. A small shunting tank engine. 10. A buffer stop at the end of a siding.

SEPTEMBER 1947 LOCOMOTIVE CONTEST

1. Tail rod. 2. Steam pipe cover. 3. Lubricator. 4. Top feed. 5. Washout plug. 6. Reversing rod bracket. 7. Ejector. 8. Vacuum ejector connection to train pipe. 9. Tender locker. 10. Vacuum pump. 11. Radius rod. 12. Reversing rod. 13. Sand box. 14. Windshield.

SEPTEMBER 1947 STAMP BARGAIN CONTEST

1. G. L. Wright. 2. Saunders & Co. 3. Windsor Stamp Co. 4. Norris & Co. 5. Errington & Martin. 6. Jos. H. Gaze.

OCTOBER 1947 RAILWAY ERRORS CONTEST

1. An engine cannot be both Simple and Compound at the same time. 2. Banking engines are placed at the rear of a train. 3. A train does not coast up a steep gradient. 4. An 0–8–4 Tank is an eight-coupled engine. 5. A "Distant" signal cannot show clear if the corresponding "Home" signal is at danger. 6. A Block Instrument is found in a signal cabin. It is not a buffer stop. 7. The Regulator Valve is either in the dome or superheater header; the regulator handle is in the cab. 8. The blue lever in a signal cabin is a facing point lock.

G	O	W	N	■	B	O	T	H	E	R	E	D
E	■	E	A	S	E	■	A	■	■	A	■	E
S	O	A	P	■	R	■	I	N	C	I	T	E
T	■	V	E	I	N	■	N	■	A	D	A	M
U	■	E	■	N	E	C	T	A	R	■	M	■
R	U	R	A	L	■	H	■	S	T	R	E	W
E	■	■	■	E	M	I	T	S	■	■	■	A
S	H	I	R	T	■	M	■	U	N	D	E	R
■	O	■	E	S	T	E	E	M	■	E	■	I
K	N	E	E	■	U	■	T	E	R	M	■	N
H	E	A	D	E	R	■	H	■	O	U	S	E
A	■	S	■	■	I	■	E	V	E	R	■	S
N	A	T	I	O	N	A	L	■	S	E	W	S

October 1947 Crossword Puzzle Solution

Britain's Main Line Diesel in Service—

(*Continued from page 291*)

the 29½ miles between these places being run in 31 min. 21 sec. start-to-stop, inclusive of a service speed reduction from 74 to 44 m.p.h. over the Trent and Sheet Stores Junctions. An even faster time could of course have been attained had not the motors been throttled back as soon as speed rose above 70 m.p.h. The driver was Beard, of Derby.

On the return journey, with a load of 252 tons and with Driver J. Palmer, also of Derby, at the throttle, some interesting station-to-station running was witnessed on a train making frequent stops; the best effort was to cover the 19.6 miles from Bedford up to Luton, inclusive of a p.w. slowing at the outset, in 23¼ min., start-to-stop, speed being maintained at 57 m.p.h. on the long 1 in 200 climbs.

To sum up, Britain's first main line diesel-electric locomotive is smooth riding, easy to drive, introduces an entirely new standard in footplate comfort, and from the layman's viewpoint yields a standard of performance fully comparable with the best type of work achieved to-day by steam locomotives of the "5X" series, with similar loads. This is, of course, purely a personal impression; comparisons of cost, maintenance, and other technical considerations await the long-term verdict of the experts.

An Ancient Clock Restored by Welding—

(*Continued from page 311*)

bell, and more definite locking action at the conclusion of the sounding of the hour.

Some of the iron frame bars also were built-up and strengthened by welding. It would not have been possible otherwise to provide the necessary rigidity without the use of bolts and nuts, which would have been detrimental to the appearance of the mechanism.

The right-angle gear assembly at the top of the shaft linking the mechanism to the spindle carrying the hand also called for some skilful welding, for one of the teeth of the upper contrate wheel was broken right out. An entirely new tooth was built-up, and shaped and finished in the same way as the teeth of the main mechanism. The spindle carrying the hand was so corroded at its outer end that a new one was essential. The replacement is a copy of the original, but an improved method of attaching the hand was devised. The hand itself is made of copper, stiffened and reinforced by an iron plate attached at the back. A new flange, which gave a very secure means of mounting the hand on the end of the spindle, was provided, and joined to the iron backing plate by welding to avoid drilling holes in the existing parts.

The dial, consisting of a disc painted directly on the stonework of the tower, was scraped down and repainted. Before this work was commenced the colour was black and white, but scraping revealed traces of the former colour, which was restored. The background of the dial is white, with large black Roman numerals, quarter and half-hour divisions are in red, and around the circumference of the dial is a ring of blue. The disc forming the bearing for the hand spindle at the dial centre is red, and the hand is black, with a gilt line running down the centre.

It was impossible to make a sound repair to the hour striking hammer, and so a new hammer was constructed by forging, flame-cutting and welding. It is an almost perfect reproduction of the rather unusual type of hammer originally fitted.

After a running test, the clock was re-erected in the tower, and its performance since has proved that the repair work was well worth while, for the time-keeping is very satisfactory, and the striking is clearly heard. The clock now seems capable of many more years, or even centuries of good service, and it is interesting to note that without the very effective assistance given by arc welding it would have been scrapped, or would have become a "museum piece." Now it is able to continue its work of recording the passing hours, and is quite the pride of the village.

So far as is known, the Coningsby clock is the first ancient specimen on which welding has been used to assist restoration. It certainly seems possible that other timekeepers of historic value may be given a new lease of life by this process.

As can be seen from the picture on page 311, the great dial has an almost startling appearance on the tower, and as it is so big, the time to the nearest five minutes can be read with ease by noting the position of the tip of the hour hand in relation to the adjoining ring of quarter-hour divisions. In clear weather the dial can be seen for several miles, and it was a familiar landmark to R.A.F. Bomber Command aircrews during the war, for the tower is close to an aerodrome which was an operational station for our bomber offensive.

LONDON MIDLAND ROUTE BOOKS

British Railways, London Midland Region, have produced a series of five books covering main line routes of the former L.M.S. Each contains a continuous route diagram so that the traveller can follow the principal lineside points of interest on both sides of his route, while railway features such as stations, bridges, tunnels and so on are clearly indicated. An illustrated descriptive section provides what is, in effect, a running commentary on the topography and local characteristics of each route. The books are of interest to the traveller who wants to know something of the journey and of the countryside through which he passes, and naturally they have a special appeal for the railway enthusiast.

Book No. 1, "*The Track of the Irish Mail*," deals with the historic route from Euston to Holyhead via Crewe and Chester. The rail service is now 100 years old, for it began on 1st August 1848. Book No. 2 "*Along the Viking Border*," takes the main line from Euston to Crewe and Liverpool as its subject. The route into Lime Street is dealt with and details also are given of the less well-known line serving Riverside Station, right on the Mersey waterfront. Books Nos. 3 and 4 are respectively Parts I and II of "*The Track of the Royal Scot*," the first of which covers the journey from London to Carlisle by the West Coast route over Shap. The second completes the tale northward from the Border City over Beattock Summit and down the valley of the Clyde through the industrial area to Glasgow. Book No. 5, "*The Track of the Peak Express*," takes the reader from St. Pancras over the Midland route to Manchester.

The books are of convenient size to handle during the train runs they describe. They are produced and printed on good paper, with a pleasing coloured cover, and a route map and station index are aids to ready reference. Copies are available at L.M.R. principal stations and offices, price 2/6 each. The two "*Royal Scot*" books are available also at the Scottish Region Offices, Glasgow.

THE RAILWAY EXECUTIVE
APPOINTMENT OF PUBLIC RELATIONS OFFICER

The Railway Executive have set up a Public Relations Organisation, and Mr. D. S. M. Barrie, M.B.E., has been appointed head of this Department. Mr. Barrie is well known to readers of the "*M.M.*," to which he has contributed many splendid articles on railway topics of all kinds. Several of his excellent books on railway subjects have been reviewed in the "*M.M.*"

Mr. Barrie is a unique combination of journalist and railwayman. He began his career on a London daily newspaper, and from 1924 until 1932 he was employed on the editorial staffs of various London and provincial newspapers. In the meantime he developed his knowledge of railways, and in 1932 he joined the advertising and publicity staff of the former L.M.S., to which he returned on the completion of his war service in 1946. In 1947 he was appointed Assistant Advertising and Publicity Officer, L.M.S.

Fireside Fun

"I don't feel very well to-day, mummy. I've got pains."
"Oh! Where are they worst?"
"In school, mummy."

* * * *

"Now hurry home, or you'll be late for dinner."
"No, I shan't. They can't start without me. I've got the chips."

* * * *

"What did you say you feel like, Brown?"
"I say I feel like bed, sir."
"Bedser! You don't look like him, Brown, and I'm sure you couldn't get Bradman out."

* * * *

"Have you tried these sausages, madam?"
"Yes, and I found them guilty."

* * * *

"Daddy, give me sixpence for a poor man who's asking for money."
"Sixpence for a poor man. Where did you see him?"
"In the pay box at the pictures."

* * * *

"I think the finest invention was a thing to look through a brick wall."
"An X-ray set of some kind?"
"No, just a window."

* * * *

THIS MONTH'S HOWLER

Lumbago is what is used for making lead pencils.

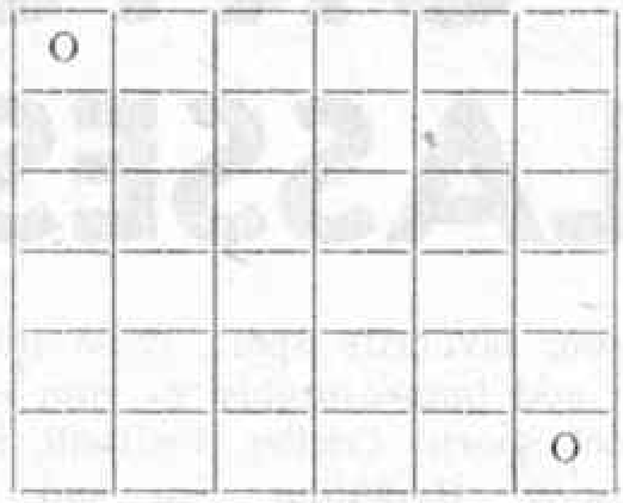
* * * *

"Hello, old top. New car?"
"No. Old car, new top."

BRAIN TEASERS

TWINS ONLY

There are two circles in corner squares of the diagram shown below. Add 10 more circles, each on a different square, so that no more than two of them are in a straight line, either vertically, horizontally or diagonally. S.W.C.



* * * *

NUMBER OFF

In the first five houses on the right-hand side of Acacia Avenue live Smythe, Kresky, Prince, Astor and Ritz. The numbers of the houses of Astor, Kresky and Smythe add up to 18, those of Ritz and Astor to 8, and those of Prince and Smythe to 14. Smythe's number is half of Kresky's. At what numbers do the five men live?

* * * *

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On counting the money in his cash box, in an ornament on the mantelpiece and in his pockets, Jones discovered that he possessed V guineas, T guineas and £V/LV/–, where each letter represents a different number below 10, and these sums added up to an exact number of pounds. How much money had he? B.I.N.

* * * *

"Hi! What's the game?"
"No score so far."

* * * *

SOLUTIONS TO LAST MONTH'S PUZZLES

The clock in our first puzzle last month would strike one at every hour. In addition it would strike one at half past six.

In our second problem the small bundles, with half the diameter of the large ones, would have only one quarter the contents. Thus two small bundles only made up half a large one and the price therefore should have been 3d.

The fly in our third puzzle crawled 15 in. if it took the shortest route. To see this imagine one vertical side on the edge of which it started to be turned up to lie in the same plane as the top of the cube. A straight line between the position of the fly and that of the speck of sugar is then the shortest distance.

The present age of the man in our fourth puzzle is 40 years of age.

Yes, you can make one word out of NEW DOOR, for the letters of ONE WORD and NEW DOOR are the same. If you missed seeing this try it on your friends.

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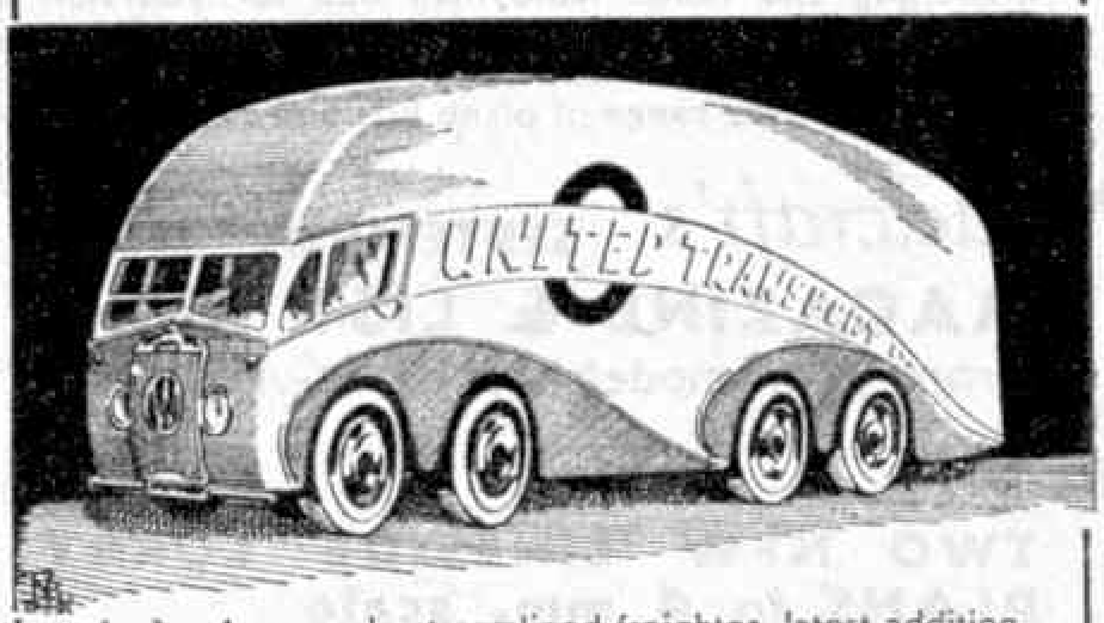

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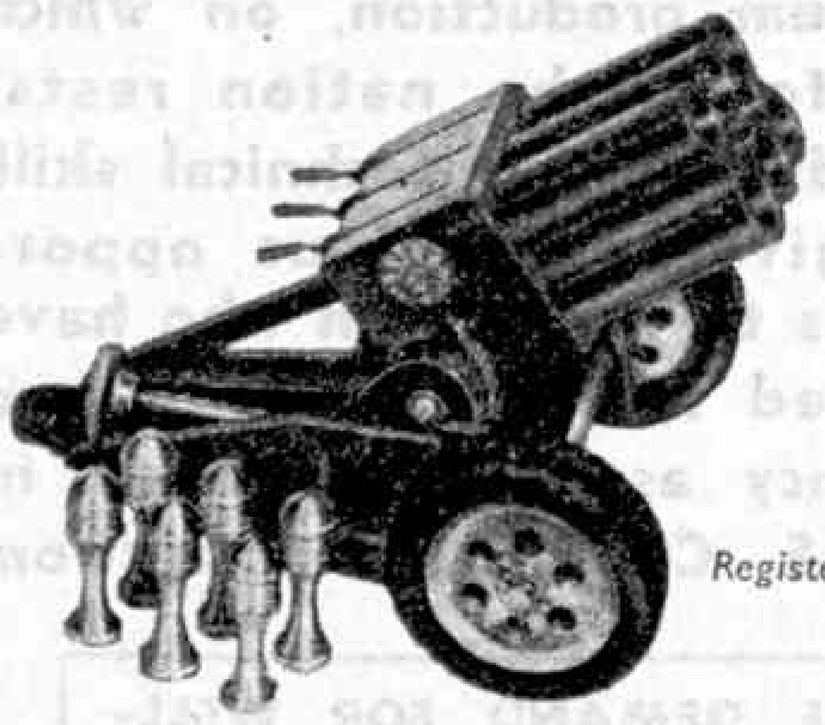

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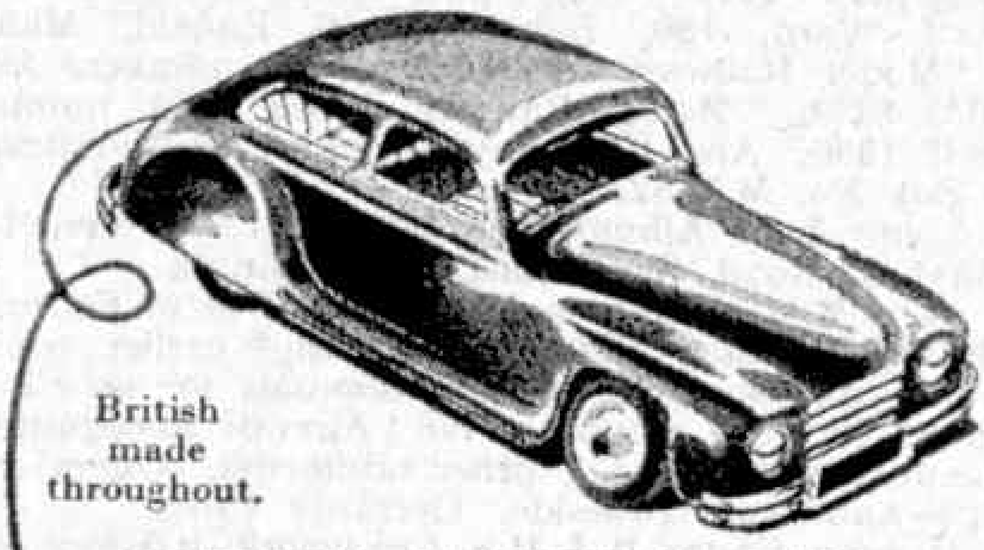

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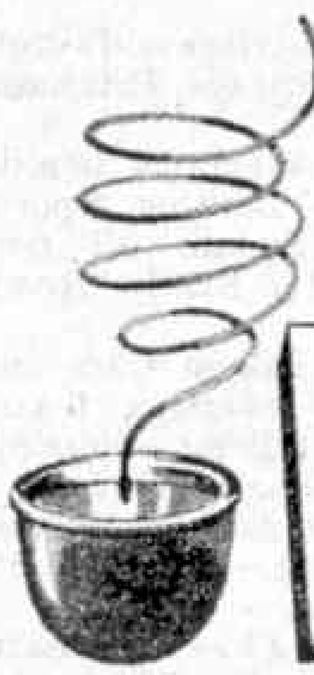

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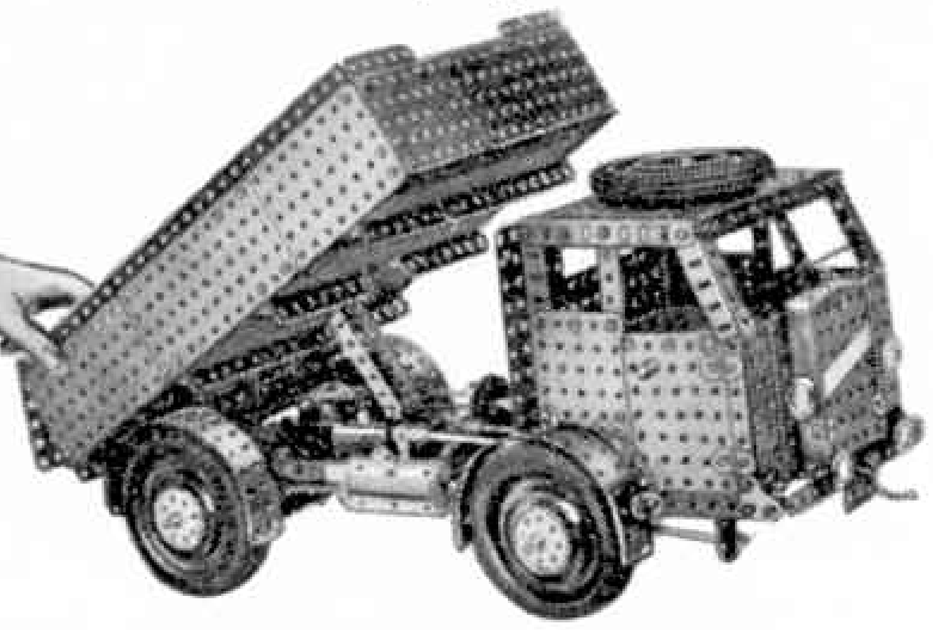

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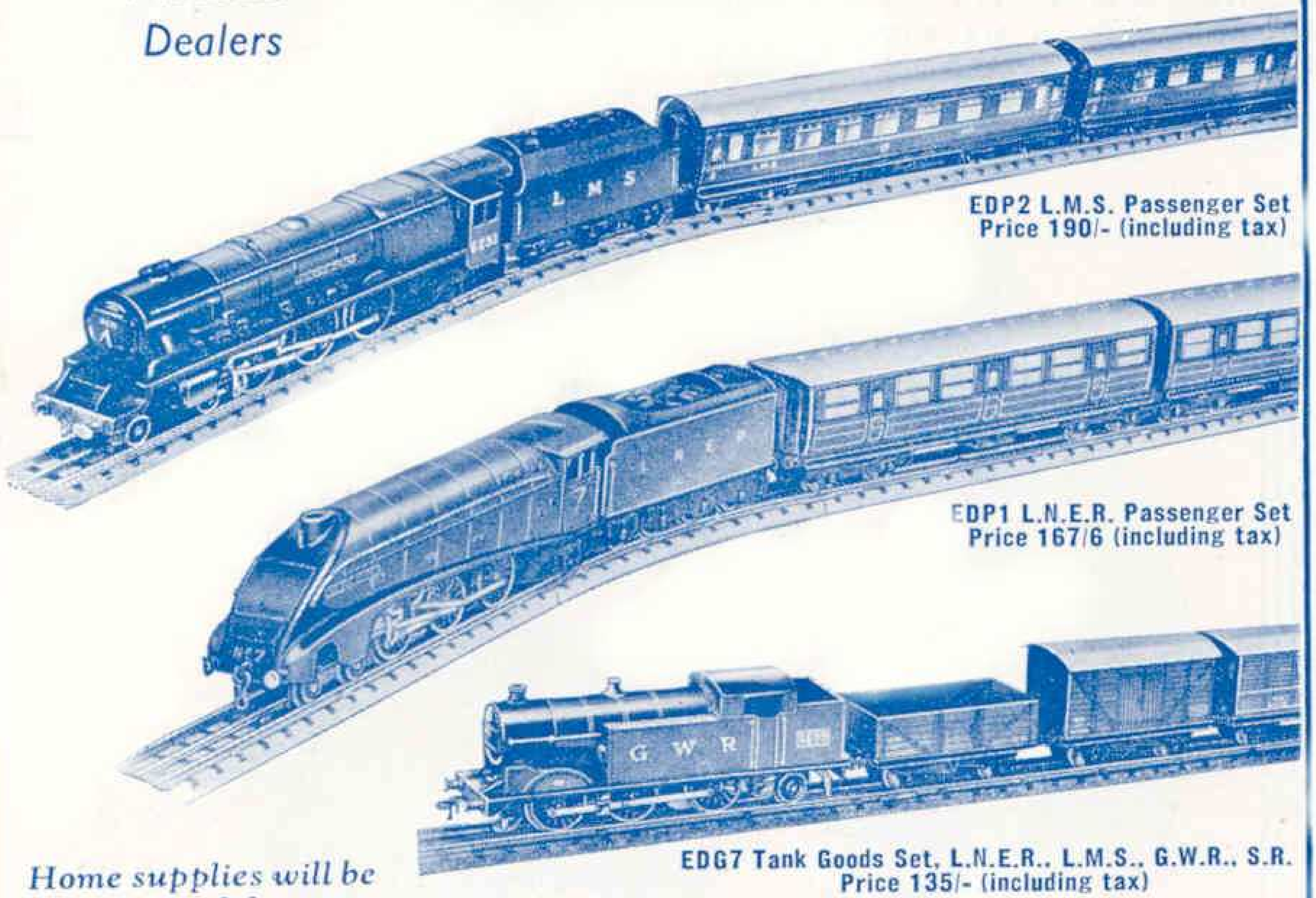

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